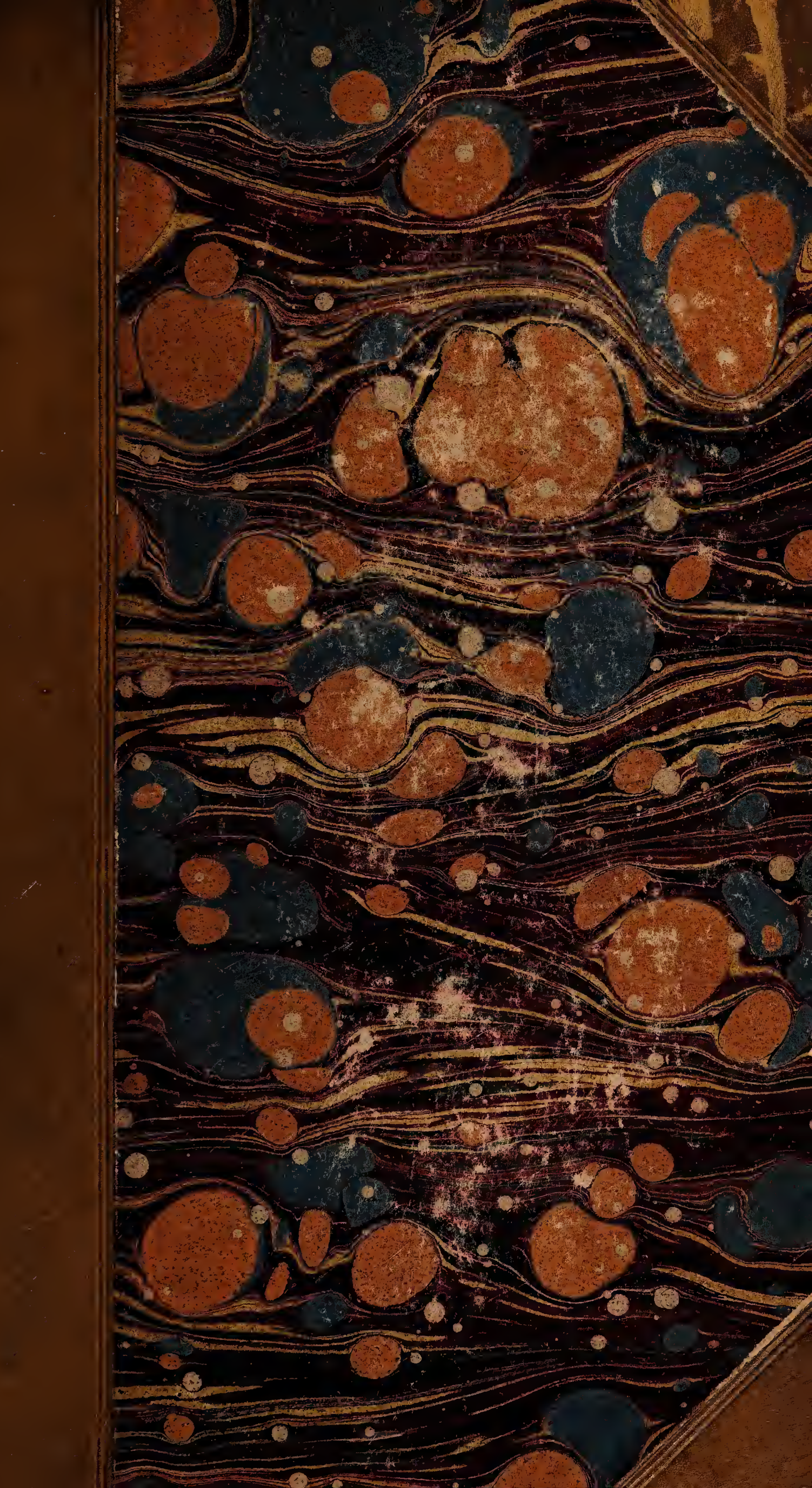



HONI SOIT QUI MAL Y
VIRTUTE
NON
VERBIS
Lansdowne.

The Most Noble
The Marquis of Lansdowne
with Most Respectful Compliments
from The Author

BULAM, VOMITO-NEGRO,

OR

YELLOW FEVER.

OBSERVATIONS

UPON

BULAM, VOMITO-NEGRO,

OR

YELLOW FEVER,

WITH A REVIEW

OF

"A REPORT UPON THE DISEASES OF THE AFRICAN COAST, BY SIR WILLIAM BURNETT AND DR. BRYSON,"

PROVING ITS HIGHLY CONTAGIOUS POWERS.

BY

SIR WILLIAM PYM, K.C.H.

INSPECTOR-GENERAL OF ARMY HOSPITALS,
AND SUPERINTENDENT-GENERAL OF QUARANTINE.

LONDON:
JOHN CHURCHILL, PRINCES STREET, SOHO.
1848.



C. and J. Adlard, Printers, Bartholomew Close.

TO THE MEDICAL OFFICERS

OF

THE NAVY AND ARMY.

GENTLEMEN,—In the year 1815 I addressed you in the following words :

" With a view of preventing a recurrence of the miseries and mortality which have been produced in different parts of the world, more particularly in the Navy and Army, in consequence of the erroneous opinions published respecting the nature of the Bulam, improperly called the Yellow Fever, the following pages are with respect submitted for perusal."—

In consequence, however, of the length of time that has elapsed, I must now address myself to a new race, and call their particular attention to the pages referred to in the Preface.

The question is no longer Contagion, or Non-contagion, but whether there are two distinct and different diseases, viz., the Remittent Fever, which prevails at all times on the coast of Africa, and *is not contagious;* the other the Bulam or Vomito-Negro Fever, which, like smallpox, makes its appearance only occasionally, and *is highly contagious.*

Every medical officer who has been on the African station, fancies that he has seen the Yellow Fever; but, upon referring to page 74, he will be convinced of the contrary.

I am, &c.

THE AUTHOR.

PREFACE.

A DISEASE, under a variety of names—Bulam, Vomito-Negro, Yellow Fever, &c.—has at different periods prevailed, not only on the Coast of Africa, in the West Indies, and North America, but in the South of Europe, particularly in Spain, at Cadiz, Gibraltar, and Malaga.

It had not, however, made its appearance for a considerable number of years, even in the West Indies, when an account of a disease was published by Dr. Chisholm, as having been imported into the island of Grenada from Bulama, on the Coast of Africa, in the year 1793,—and with which the history and progress of the disease, the subject of the present Treatise, agrees so perfectly; I have retained the name of Bulam Fever, as well with the view of pointing out a distinct, and extraordinary disease, as of drawing a line of discrimination between it and the remittent or marsh fever, with which it has been confounded.

Having been more than once witness to the dreadful ravages committed by this disease, and having for several years acted successfully against its influence by precautionary arrangements, in the years 1800 and

1803, when it prevailed at Cadiz, Seville, Malaga, and other towns in Spain, and more particularly in 1810 (p. 28), when it was introduced into Gibraltar from Carthagena—

I have thought it a duty incumbent upon me to step forward in the cause of humanity, (with the view of combating the errors and opinions relating to it which have been so industriously circulated, even by medical men who have never seen it,) and by a collection of facts and arguments to convince the most prejudiced, that the disease in question, is a very different one from that described by Sir William Burnett as the Mediterranean or Bilious Remitting Fever; that it is highly infectious; and that its fatal effects may be prevented by the establishment of well-regulated precautionary arrangements.

Having had the advantage of seeing this disease, not only in the West Indies, but in Europe, I have had the good fortune to ascertain *peculiarities belonging to it,* which were unknown before, particularly that of *its attacking the human frame* BUT ONCE—a circumstance of the utmost importance to be known, not only as relating to the comfort of the sick, but as assisting materially in the regulations necessary to be established, with the view of checking the progress of, or totally exterminating this most fatal of all diseases.

The Preface to my first edition was published so

long ago as the year 1815, since which period I regret to say that little advance has been made as to the real nature of this disease, more particularly by the Naval Medical Officers, who certainly ought to have been the best informed upon the subject.

Important additional information, however, has been acquired relative to its history, in a Paper published by Mr. Ferguson, formerly Colonial Surgeon, and ultimately Governor at the settlement of Sierra Leone. (p. 74.) Some further information has also been acquired by the unhappy fate of the crew of the steamer *Eclair*, which arrived in England from Boà Vista, one of the Cape de Verd islands, in the autumn of 1845. (p. 140.)

In consequence of the history of the disease which prevailed on board this vessel, I was very much inclined to reprint my work on Bulam Fever, and had not made up my mind as to the undertaking,—when a Report upon the Diseases of the African Coast, published by order of the Lords of the Admiralty, made its appearance, which contained so much new, and convincing evidence, in confirmation of my opinions, and of all the arguments which I had advanced, not only as to contagion, but as to the existence of two different and distinct diseases (the Reporters being unaware that they were supplying information for the complete overthrow of their own theory and doctrine), that I at once made up my mind upon the subject.

The Report is published under the name of Dr. Bryson, who states that it was drawn up under the immediate direction of Sir William Burnett, and most thankfully acknowledges the great advantage he has derived from his *daily assistance and advice* in every stage of its progress.

I cannot help, therefore, considering the Report as a *joint one.*

As a medical work, more particularly the history of a fever, is rather dry reading, and as few persons, unless particularly interested in the subject (which all Naval and Military Officers ought to be), are likely to undertake the task of reading it, I shall refer to a few pages which I consider of some interest as pointing out the infectious nature of the Vomito-Negro Fever, and its importation into certain ships and communities, which (if the nature of the disease had been known) might have been obviated, and consequently would have been the means of preventing a great loss of human life.

First, I must mention, that in the years 1800 and 1803, the fever prevailed to a great extent in Spain to the east and west of Gibraltar; a rigid quarantine was, however, established against the disease, and the garrison continued healthy.

I next refer to p. 21, when the precautionary arrangements were discontinued, and the sad mortality in consequence (p. 26.)

To the successful measures had recourse to in 1810, when the fever was introduced into Gibraltar from Carthagena (p. 29.)

To the importation of the fever into the *Bann* sloop-of-war, at Sierra Leone, when the fever prevailed on shore, and its importation by that ship into the Island of Ascension (p. 76.)

The importation of this fever into the Gambia and Goree by the *Curlew* brig of war (p. 77.)

Fever in the *Eden,* her melancholy history, and clear proof of the importation of the fever into the ship by a midshipman (p. 120.)

The communication of the disease by this ship to the colonists at Fernando Po (p. 122); and the communication of the disease to the crew of the *Sibylle* frigate by the mariners at Fernando Po (p. 126.)

The *Forester's* crew suffered from the fever when it was prevalent on shore at Sierra Leone, in 1838 (p. 135); and after sailing, she fell in with the *Bonetta* at sea, and gave over to her a prize crew,—by them the disease was communicated to the crew of the *Bonetta* (p. 139.)

Eclair, her history (p. 146.) *Eclair,* deaths in, after arriving in England (p. 161.) Consul Rendall's Letter to Lord Aberdeen (p. 169.)

In bringing forward this Second Edition, I have been working in the cause of humanity, having in view the saving of human life; of which there has been on various occasions such a frightful destruction, *in consequence of the nature and character of this fatal disease not having been known;* the mistaken theory and false doctrines published respecting it, having prevented precautionary measures being established against it.

The contents, however, of the pages to which I have referred are, I trust, sufficient to convince every one of the truth of what I have advanced, excepting those individuals who are blinded by a *non-contagious delusion*, and deaf to all the most convincing representations, as to the history, character, and symptoms of two most *distinct* and very *different* diseases.

CONTENTS.

Erratum.—The dates to the Tables in pages 26 and 27 to be transposed.

ON THE

BULAM OR VOMITO-NEGRO FEVER.

GENERAL OBSERVATIONS.

L'art de conserver les hommes est une branche bien essentielle de l'art de les gouverner.

THE disease, the subject of the present treatise, is the fever which has prevailed epidemically, at different periods on the coast of Africa—in the West Indies—on the continent of America—at Cadiz, Gibraltar, and other places in Spain; which I shall denominate the *Bulam* or *Vomito-Negro Fever;* and without entering into any disquisition upon its proper nosological name, I shall only observe that it has been generally, but very improperly, termed the Yellow Fever, in consequence of its having appeared most frequently in the West India Islands, where, ever since their discovery, bilious remitting and continued fevers of a very bad type have prevailed, in which jaundice or yellowness of the skin is a very frequent symptom. In my first edition, the principal object I had in view was to counteract the influence which the erroneous opinions of Drs. Bancroft* and Sir W. Burnett had had upon the minds of the public, as well as of the profession, by bringing forward evidence to prove that it is a different disease from the bilious remitting fever; that it is not produced by, nor in any way connected with, marsh miasmata; that it has not been a constant resident either on the coast of

* As Dr. Bancroft is no more, I shall confine my observations to the last gentleman.

Africa or in the West Indies; *that it is highly contagious,* and capable of being imported to, and propagated in, any country enjoying a certain degree of heat; *that, like smallpox, it attacks the human frame but once,* and attacks, in a comparatively mild form, natives of a warm climate, or Europeans whose constitutions have been assimilated to a warm climate by a residence of a certain number of years; and lastly, that it differs from other diseases, in having its contagious powers *increased by heat,* and totally *destroyed by cold,* or even by a free circulation of *cool air.* My object, I trust, will be attained by proving that the controversy, so long and so bitterly agitated, ought not to have been as to contagion or non-contagion in yellow fever, but as to the existence of two very different and distinct diseases.

Different authors who have written upon remittent fever, being ignorant of the nature of this Bulam or Vomito-Negro disease, have formed most erroneous opinions concerning it, they very generally supposing it to be an aggravated form of the remittent non-contagious fever, and upon this rests the long contested question, viz., Whether the fever which has prevailed at different periods in the West Indies and America since the year 1793, and at Cadiz and other parts of Spain since 1800, is the endemic non-contagious disease of those climates, arising from marsh miasmata, or a disease of foreign origin, with peculiarities which distinguish it from all others, and having the power of propagating itself by a specific contagion?

In entering upon this question, I shall give as brief a history as possible of the disease, as I first met with it in the West Indies, and as it afterwards appeared at Cadiz, Gibraltar, and Philadelphia. I think it necessary, however, to remark that, from the unfortunate appellations of seasoning fever, and yellow fever, used by writers upon the diseases of the West Indies, and to which they supposed all Europeans must be subjected soon after their arrival, as a tribute to be paid to the climate, we have been led to believe that only two kinds

of fever were to be met with in those islands; viz. the Bilious Remittent, in different degrees of concentration, and the Bilious Continued, or Sporadic Fever—neither of them contagious.

The first is an endemic of all warm climates, it is the jungle fever of the East Indies, the bilious remittent of the West Indies, and the malaria or remittent of the Mediterranean, prevailing more particularly in the neighbourhood of marshy and uncultivated ground.

The second, the Bilious Continued, is the common fever produced by exposure to the sun, excess in drinking, and other irregularities. But in addition to these two fevers, a third, the one under consideration, the Bulam or Vomito-Negro (of the Spaniards), a highly contagious disease, has at different periods made its appearance in the West Indies, in North America, and in the south of Spain, and supposed to have been originally imported from the coast of west Africa.

The first variety of the disease, the Bilious Remittent, assumes such a diversity of forms and symptoms, owing to the constitution of the patient, the heat of the climate, and the degree of concentration of the marsh miasmata, that it is difficult at its commencement to draw a diagnosis between it and the two others; as the disease advances, however, it shows its characteristic mark by remissions, and succeeding exacerbations, and if it proves fatal without evident remission, which in its more violent form it sometimes does, on the third or fourth day, it is very rarely (if ever) attended with the fatal symptom peculiar to the Bulam fever, viz. the black vomiting. This is Sir W. Burnett's Mediterranean fever, of which further notice will be taken in due time.

In the second variety, or Bilious Continued Fever, the head-ache is confined chiefly to the temples, the pulse is remarkably full, but not so quick as in the two others; the yellowness appears very early in the eyes, and on the second or third day the *whole body is tinged of a very deep yellow;* it is not attended with the same degree of irritability of stomach as in the first and third varieties; it has no remission or exacer-

bation, but runs its course as a continued fever, in from five to eight or ten days, and when terminating fatally is not attended with black vomiting.

In the third variety, the Bulam or Vomito-Negro Fever, there is at the first attack a peculiar shining or drunken appearance in the eyes, the headache is excruciating, and confined to the orbits and forehead. *It has no remission,* and in mild cases, when it terminates favorably, is rarely attended with yellowness of skin, which, if it does take place, is of a *pale lemon colour;* it runs its course in from one to five days; is attended with a peculiar inflammation of the stomach, which, in most cases that prove fatal, terminates in gangrene, or in a diseased state of the villous coat of that organ, accompanied with vomiting of matter resembling coffee-grounds, and a very peculiar bloated appearance of the countenance. In mild cases, however, of this last disease, and of which there are many, it is impossible to point out any symptoms distinguishing it from attacks of fever from any cause; and even in bad cases, until the fatal symptoms make their appearance, I may say (excepting its prevailing epidemically) it is as difficult to decide upon its real nature, as it is in the fever of smallpox before the appearance of eruption.

It is well known that these first two varieties of disease existed in the West Indies, under the name of yellow fever, ever since the discovery of the islands, and that history has handed down to us accounts of the third having appeared there at different times; and from being generally supposed to have been produced by imported contagion, went under the names of Mal de Siam, Fièvre Matelotte, Vomito-Prieto, Kendal's Fever, the New Distemper, &c. This last was imported several times during the last century into Cadiz., viz., in 1736, 1744, 1746, and 1764, from which time there was no appearance of it in that city, nor in any part of the Mediterranean, until the year 1800, when it again showed itself at Cadiz, was traced to importation, and spread from thence to Seville, Xeres, Malaga, and other places. It

appeared again at Cadiz in 1803, but in that year many of the neighbouring villages took precautions against it, and by establishing quarantine regulations, effectually saved themselves from its ravages. During those years it is worthy of remark, that Carthagena, one of the most unhealthy spots upon the coast of Spain, did not suffer from this disease; the inhabitants were visited with their usual remitting and intermitting fevers, but the mortality was not greater than in former years; nor is there any account of this fever having, at any former period, made its appearance at Carthagena, or in any part of Italy, Sicily, Sardinia, or in the Levant, although the inhabitants suffer severely from the fevers produced by malaria, but differing essentially from the disease in question, in not being contagious, and in attacking natives and strangers indiscriminately and repeatedly, no length of residence, or number of attacks, rendering the constitution proof against them. This same fever, upon the authority of Sir William Burnett, was imported into the Islands of Ascension in 1823, by the *Bann* sloop of war. It was imported a second time into this Island by the *Ætna* and *Forrester* sloops of war, in 1838, and so late as 1845 into Boà Vista, one of the Cape de Verd Islands, by the steam sloop of war *Eclair*.

Having observed that this disease is possessed of peculiarities distinguishing it from all others, I think it necessary to take some notice of them.

It so far appears to be the offspring of heat, that its powers, both of contagion and destruction, are increased by it to a wonderful degree; and it shows a respect for natives of a warm climate, or Europeans whose constitutions have been assimilated to a warm climate, by attacking them in a comparatively mild form. By natives of a warm climate, I mean those born in a degree of heat equal to that within the tropics: I do not rank the inhabitants on the shores of the Mediterranean as coming within this range; for although they live for some months of the year in a degree of heat equal to from 70° to 80° of Fahrenheit, the cold of winter prevents their

constitutions undergoing that change or assimilation which takes place with Europeans, by a constant residence for a certain number of years in the East or West Indies.

Fatal experience has proved this fact, together with the fallacy of the generally conceived opinion, of the advantages that troops are supposed to derive, from what is called seasoning them to the climate of the West Indies, by being quartered for some time before in the Mediterranean.

As the contagious powers of this disease are increased by heat, they are, on the contrary, destroyed by cold. The last and most remarkable peculiarity, is its *attacking the human frame but once;* the contrary of this has been asserted by different authors, but since the appearance of the disease in Europe, the fact has been proved to as great a certainty as it has been in the smallpox or measles; and if any doubts before existed with respect to its contagious powers, or of its being a disease *sui generis,* this one peculiarity ought to put the question at rest.

Dr. Chisholm published an account of the introduction of this disease into the Island of Grenada, in the year 1793, by the ship *Hankey,* upon her arrival there from the coast of Africa; and, in justice to Dr. Chisholm, I think it necessary to mention, that all the circumstances relating to this disease, as I had an opportunity of observing them, not only in the West Indies, but in Europe, tend to confirm the truth of his first account of it. I shall here mention it as it first came under my observation.

In the year 1794, I was surgeon to a flank battalion, commanded by Sir Eyre Coote, in the expedition under Sir Charles Grey, which landed in the island of Martinique in the beginning of February. It is unnecessary to describe the progress of the campaign; I shall therefore only observe, that during the operations for the reduction of the islands of Martinique, St. Lucia, and Guadeloupe, the troops underwent very considerable fatigue, particularly the battalion to which I was attached, having in general been in advance, and taken part

in storming all the principal heights in the different islands; and having been exposed, for nearly four months, to all the changes of climate at that season of the year; frequently bivouacking under temporary wigwams during the day, and having nothing to protect them against the rains and damps during the night but a blanket, which, in addition to a knapsack, was carried by every soldier.

During all this time, however, the officers and men enjoyed much better health than could have been expected under the same service in Europe. But after the surrender of Guadeloupe, when the troops employed in the capture of this island continued to enjoy the highest state of health, a despatch was received by the Commander-in-Chief from Martinique, informing him that a very bad fever had broken out in the 70th regiment. I received orders to repair to Martinique for the purpose of taking charge of the regiment; I immediately embarked on board a frigate, and in a few days reached my destination (Fort Edward, close to the town of Fort Royal), when I found that the surgeon and one hundred and eleven men had fallen victims to the disease in the course of a month.

As I had but lately arrived from Europe, I was of course a stranger to the diseases of the climate; I anxiously made every inquiry at what I thought the fountain head for information, as to the nature of the prevailing malady, and the best method of treating it; my success, in this respect, however, was very unsatisfactory. Dr. Clifton, then at the head of the Medical Department of the army, was at a loss as to the nature of the disease; although he had resided many years at Barbadoes, he had never seen it, as he said, in so concentrated a form, and concluded that it was the fever of the climate, aggravated by the fatigues of the campaign. Some of the hospital staff conjectured it to be a mixture of typhus from England, with the yellow fever of the West Indies; and the French practitioners put it down as a species of jail distemper, generated amongst the prisoners before the surrender of the garrison. This variety of opinions, even

among those long resident in the climate, afforded but little satisfaction to me as a new-comer, and left me completely in the dark as to the method of cure; but, from the manner in which the disease spread, I could have no doubt as to the existence of contagion. It originated among three companies quartered in some casemates, or bomb-proof barracks, in Fort Edward, and was for some time confined to them; the men in hospital with other complaints were next attacked, and, in succession, the surgeon and hospital attendants. It was some time before it was communicated to the troops quartered in the barracks upon a more elevated situation in the same fortification; but the moment it laid hold of them, it commenced its ravages; while the only persons in the town of Fort Royal that suffered from the disease, were the officers who had joined the mess, or visited the sick officers of the 70th regiment.

The first step I had recourse to, was to propose a change of quarters for the regiment, which was immediately ordered by General White, who then commanded. The men were encamped upon an airy elevated spot of ground, Point Negro, close to the sea, about two miles and a half distant from the town, where they experienced an almost instantaneous change for the better; after some days, disease disappeared in the camp, where the regiment continued in the highest health for three weeks; before the expiration of which time I had myself been attacked with the disease in its most violent form, and from which I recovered, contrary to the expectations of the medical gentlemen who attended me; but I was so much debilitated, that it was a considerable time before I was enabled to return to my duty, when I found the regiment removed to Case Pilot, a healthy village on the sea-shore, equi-distant from St. Pierre and Fort Royal: here the troops continued healthy until the arrival of the convalescents from hospital, with their knapsacks and blankets, which, being distributed among the different companies, communicated the disease so very generally, that in the course of a very short

time, every individual in the regiment was attacked by it, with the exception of three officers, who, if they were attacked with the fever, had it in so mild a form, as to make it unnecessary for them to be confined to bed.

Having given this account of the progress of the disease in one regiment, which was the first that suffered from it among the troops employed in that campaign, I think it right to mention that it very soon ran the same course through every corps that had arrived from England, and even through the regiments that had been some years in the West Indies, with this difference, that the last-mentioned corps suffered a comparatively small mortality; but the total loss of the army in that expedition has been estimated at 6000 men. The mortality was certainly very small among the natives, or those long resident in the island, but the civilians newly arrived fell in nearly as great a proportion as the military; the seafaring people, also, particularly the men belonging to the transports, suffered dreadfully, many of the vessels having the signal of death flying for days together, and were left at last without a single soul to haul it down. Every person of colour, black as well as mulatto, seemed to suffer from fever, and, without exception, had (their cure for headache) a slice of lemon sprinkled with salt, bound on each temple; and in every house there was a jar of cooling ptisan, composed of cream of tartar, with a proportion of Seville orange-juice, the pulp of cassia fistularis, water, and coarse syrup, which they drank *ad libitum*.

For some months after the first breaking out of this disease, we had no appearance of remitting or intermitting fever, the disease ran a continued course in from one to three, or sometimes, five days, never changing into, or terminating in ague, and, although the convalescence was slow, the patients did not suffer in any one instance from visceral obstruction. During the course of the year 1794 and beginning of 1795, reinforcements continued to arrive for the army, and from occupying the same barracks and quarters with the troops which suffered from the disease, the contagion was frequently

communicated to them immediately upon their arrival, and there were many instances of officers and men not surviving more than two or three weeks after debarkation; and those troops suffered in general an equal, if not a greater, mortality than the regiments which had been employed for some time upon active service, particularly the regiments that arrived from Gibraltar, where they were supposed to have been seasoned to the climate.

Having taken this short view of the disease, as it first fell under my observation in the West Indies, I shall next proceed to Europe, where the disease for the first time in thirty-six years, showed itself at Cadiz in the month of August 1800; it was speedily communicated to the whole town, and from thence it spread rapidly to Port St. Mary's, Xeres, Seville, and other places in the neighbourhood; its ravages were so sudden and destructive, that the French Government took alarm, and sent three of the principal physicians of Montpellier, as Commissioners, into Spain, for the purpose of inquiring into its nature and causes, with the view of establishing the necessary precautions for preventing its introduction into the southern departments of France. The Report of this Commission was published at Paris in 1801, by Professor Berthe; the object of their mission was to give a faithful detail of what they had seen and heard, and their having obtained the approbation of their own government, is a satisfactory proof of their having done their duty.

Some English authors have thought proper to question some part of their publication; but as they commenced their journey, unbiassed to any particular opinion, and disengaged from all medical controversy, I think it but fair to place implicit confidence upon their detail of facts and observations, as it must be taken for granted, that the persons selected for this important office were men of honour and integrity, who considered truth as sacred, and who could have no object in

misleading the world upon a subject of such importance to humanity. As few persons in England have had an opportunity of perusing Professor Berthe's publication, I think it right, in justice to him and his colleagues, as well as to the question in dispute respecting this disease, to give a very short sketch of it in his own words, at least of that part of it which relates to the origin and progress of the disease; this I have thought the more necessary, as I have not met with any Spanish author, who has given a history of its first appearance in 1800, although several have treated of its symptoms and cure.

The French Commissioners, upon their arrival at Barcelona, wrote to their Ambassador at Madrid (Lucien Bonaparte) for instructions; from whom they received the following reply, and immediately proceeded upon their journey towards Cadiz and Seville.

"Madrid, 26 frimaire, an 9.

"Votre lettre du 15 de ce mois, Citoyens, m'annonce que vous attendez à Barcelone, les instructions que vous sont nécessaires pour continuer votre voyage. Dans la circonstance où vous vous trouvez, et placés comme vous l'êtes sur les lieux, je pense que ce n'est pas d'après des inductions lointaines, mais d'après vos propres lumières, que vous devez diriger vos pas pour parvenir au but que le Gouvernement s'est proposé en vous envoyant en Espagne. Il me semble que c'est à Cadix même que vous pourrez mieux pénétrer les causes et suivre les effets de la maladie que vous avez à étudier.

"La France, l'Europe entière a les yeux ouverts sur votre mission, Citoyens; croyez que je partage avec tous Philantropes, l'intérêt qu'un travail si important leur inspire, et que je ne négligerai rien pour en assurer le succès.

"LUCIEN BONAPARTE (*signé*)."

“ *Origine de la Maladie, son Invasion, sa Propagation.*

“ Il est impossible aujourd’hui de se refuser à croire que Cadix ait été le premier foyer de la maladie. Les faits sur lesquels cette opinion est fondèe, sont trop nombreux et trop concluans, pour qu’il soit permis de conserver, à cet égard, le moindre doute : il suffira de citer le plus saillans.

“ C’est du 10 au 15 dû mois d’août que se manifesta dans Cadix une maladie grave qui, dès son début, se fit remarquer par l’appareil des symptômes de putridité et de malignité portés à l’extrême. Elle attaqua d’abord quelques habitans du quartier S[te.] Marie, placé à l’Est de la ville, dont les rues sont étroites et ordinairement moins propres que celles des autres quartiers, et qui est principalement habité par les marins, les ouvriers du port, et les employés de la douane. Elle fut véritablement stationnaire pendant quelque temps dans ce même quartier, d’où elle se répandit ensuite dans toutes les parties de la cité. . . . . .

“ Il est certain en effet que déjà vers la fin de juillet, quelques habitans des rues Sopranis et Boqueta étaient atteints d’une maladie qui se déclara avec les mêmes symptômes malins qu’on observa dans la suite chez tous les autres malades. On sait que ces individus furent précisément ceux qui avaient eu quelque relation avec l’équipage d’une Corvette Américaine arrivée depuis peu de la Havane ; on sait que ces premiers malades furent ou des marins, ou de hommes de peine du port, et plus particulièrement des employés de la douane et du bureau de santé ; on sait aussi que plusieurs succombèrent, et entr’autres le greffier du bureau de santé, le visitoir de la douane (el visitador de rentas), le garde principal de la porte de mer ; on sait que les deux gardes placés en surveillance sur la corvette immédiatement après son entrée dans le port, tombèrent aussitôt malades, en sorte qu’on fut obligé d’en retirer celui qui parut l’être d’une manière plus grave, tandis que l’autre essuya sa maladie à bord. On rapporte enfin que ce dernier voyant passer à portée du navire sur lequel il se trouvait encore, le Lieutenant-visiteur (el teniente visitador)

Don Francisco de Paula Carrion, l'appela à son secours, et lui dit que depuis l'instant où il avait été placé sur cette embarcation, il était tourmenté par une fièvre cruélle qui avait presqu'entièrement détruit ses forces. Le visiteur se rendit aussitôt sur ce même navire; il vit en effet le garde dans un très-mauvais état ; il vit également trois matelots de la corvette, maigres, et pouvant à peine se soutenir, qui lui déclarèrent être tombés malades avant que le navire eût obtenu l'entrée, ce qui lui avait été accordé neuf jours après son arrivée.* Depuis ce moment-là le visiteur éprouva un sentiment d'inquiétude, un mal-aise, tel qu'on l'éprouve durant les prodromes d'une maladie. Au bout de quelques jours il fut obligé de s'aliter, et *toute sa famille, très-nombreuse, éprouva bientôt le meme sort*. . . . .

" On ne s'était encore aperçu à cette époque d'aucum événement extraordinaire à Séville. Il est certain néanmoins que cette grande cité a été la première affectée après Cadiz. Il n'y avait également aucun indice de l'existence de la maladie ni à Xérés, ni à San Lucar, ni au Port Ste. Marie, ni dans les autres lieux qu'elle a parcourus et ravagés dans la suite. J'ai même déjà remarqué qu'elle était, pour ainsi dire, encore renfermée dans un des quartiers de Cadix.

" Mais si l'on se rappelle que ce quartier, el barrio Sta. Maria est celui dans lequel les marins de Cadix ont leur domicile ; si l'on se rappelle encore que Séville et Cadix sont journellement en communication, par les hommes de cet état, ainsi que par ceux qui vivent de la contrebande ; si l'on ajoute que l'intendant, arrivé de la Havane, à Cadix sur la corvette Américaine passa bientôt après à Séville avec sa famille et sa suite, et qu'il s'y rendit en remontant le Guadalquivir, on trouvera dans tous ces faits une explication au moins trés-probable par rapport à la rapidité avec laquelle la maladie se communiqua de Cadix à Séville.. . . . .

" Nous n'avons d'autre intérêt dans nos recherches que celui

* Ce navire, d'après la déclaration faite par les officiers, avait perdu neuf hommes dans la traversée.

de découvrir une vérité médicale d'une très-grande importance pour l'humanité.

"Nous dirons donc avec le courage et la franchise que nous commande notre double caractère d'observateur et d'historien, que la maladie a été portée directement de Cadix á Seville par la voie de mer ; et ce qui le prouve évidemment c'est, 1°. que les bourgs, les hameaux et autres lieux habités, situés sur les rives du Guadalquivir, entre Séville et Cadix, n'ont été infectés que quelque temps après ces deux villes ; 2°. que les villages situés sur la route de terre, n'ont éprouvé la maladie qu'après un intervalle de temps plus considérable, et seulement lorsque des fugitifs de Cadix ou de Seville s'y furent introduits ; 3° que la maladie se déclara d'abord à Séville dans le faubourg qu'habitent les mariniers, ainsi que les ouvriers journellement occupés au cabotage, qui à lieu entre cette ville et Cadix. Ce faubourg est celui qu'on appelle Triana ; il est bâti au sud-ouest de la cité, et en est séparé seulement par le fleuve.

"Les recherches les plus circonstanciées nous ont appris, que les premiers malades connus de Triana, furent des individus d'une famille dont l'unique profession était le cabotage. Tous les membres de cette famille assez nombreuse (les Lebrones) périrent en très-peu de temps à l'exception d'un seul.

"Introduite dans le faubourg de Triana, la maladie y resta concentrée pendant plus de 15 jours ; du moins ne s'étendit-elle pas bien loin pendant ce temps-là : nous en avons la preuve dans un édit publié à Seville, le 3e Septembre 1800 ; cet édit émané de don Antonio Fernandes Soler, défend aux habitans de Triana et autres quartiers de Séville de changer de domicile sans en faire part aux Magistrats, seuls chargés de juger s'il peut en résulter quelque inconvénient. La maladie exerça bientot des ravages terribles dans ce faubourg ; toutes les maisons furent infectées presque à la fois ; la désolation y fut pour ainsi dire à son comble en quelques instans, à cause des difficultés qu'il devait nécessairement y avoir dans la distribution des secours de tous les genres, soit préservatifs soit curatifs ; et encore plus souvent à cause de leur inutilité.

“ Voilà donc une conformité bien réelle et qui mérite d’être notée entre les événemens malheureux qui eurent lieu tant à Cadix qu’à Séville, dans les premiers momens de l’introduction de la maladie : dans l’une et dans l’autre de ces deux villes, elle se manifeste en un point unique; elle s’y propage de proche en proche ; et passant de maison en maison, d’un individu à un autre individu de la même famille ou de la famille la plus voisine, elle n’épargne ni sexe, ni âge ; elle ne trouve point de barrière suffisante dans les différences des constitutions, des idyosincrasies, des professions, des habitudes, du régime, dans les diverses situations relatives à l’état particulier de propreté ou d’aisance des diverses personnes qui se trouvent placées sur sa route. Enfin, se montrant partout dans son extension indépendante de toute autre cause, on la voit toujours se propager par la communication directe des personnes et des effets : n’est-ce point là la marche naturelle et nécessaire d’une affection contagieuse au plus haut degré ? . . .

“ Pendant notre séjour à Cadix, nous trouvâmes souvent l’occasion de nous instruire parfaitement de tout ce qui s’était passé à l’occasion de la maladie dans les villes qui bordent la baie, Rota, le Port S$^{te.}$ Marie, Puerto-Réal Chiclana. Dans la même vue plusieurs d’entre nous se rendirent à la Isla et à la Caraque. *Je fais une mention expresse de ce dernier lieu par rapport à une circonstance très remarquable.*

“ La Carraque *est l’arsenal de la marine royale :* c’est une isle située vers le fond oriental de la baie et qu’habitent des officers de marine, un certain nombre d’ouvriers constructeurs ou autres, une garnison, et une très-grande quantité de forçats : l’entrée en est toujours rigoureusement interdite à tout le monde. Il n’est pas étonnant, d’après cela, que cet endroit ait été garanti de la contagion, dans le temps même q’elle ravageait tous les environs. Il est prouvé en effet qu’elle ne s’y manifesta qu’après l’arrivée d’une frégate qui, ayant séjourné pendant quelque temps dans la baie, eut ordre de se rendre à la Carraque pour y être désarmée. Cette frégate avait perdu plusieurs hommes ; elle avait encore à bord des

maladies dont la plupart périrent dès qu'ils eurent été transferés à l'Hôpital de la marine. Depuis cette époque, à ce que nous assura le Médecin en chef de la Carraque, la maladie se développa avec rapidité dans tous les points de cet établissement, et y enleva, en très-peu de temps comme partout ailleurs, environ le quart des habitans, exerçant surtout ses ravages parmi les forçats. . . . .

" Je dois placer parmi les faits du même ordre une observation très-curieuse qui nous a été communiquée par le Docteur Capmas, relative à la ville d'Algeziras.

" La maladie se manifesta seulement dans une rue de ce ville. On eut aussi-tôt l'attention de barrer cette même rue des deux côtés, par une muraille dans laquelle on plaça une grille. C'est par cette grille qu'on faisait passer les alimens et autres objets nécessaires aux habitans de la rue clôturée, ayant l'attention de ne permettre la sortie d'aucun personne ou d'aucun effet de l'intérieur. Cette précaution très sage, ayant été continuée pendant tout le temps nécessaire, réussit complètement : la maladie en effet ne dépassa par la barrière.

" Je ne connais pas de preuves plus convaincantes de la nature contagieuse de la maladie, que ces divers faits relatifs aux individus qui s'en sont évidemment préservés en évitant toute communication, si sur-tout on les réunit aux autres faits bien plus nombreux qui se rapportent aux malheurs qui ont été la suite évidente d'une communication non-interrompue. . . .

" Il est bien avéré que la maladie a moissonné à Séville plus du sixième de la population, en prenant un terme moyen de la perte totale ; mais il est reconnu en même temps que tandis que dans les quartiers les plus propres, les mieux percés, dans ceux habités par les personnes aisées dont les maisons sont bien aérées, il périssait environ un individu sur dix-huit ou ving malades ; on voyait au contraire succomber le quart, le tiers, la moitié de ceux qui avaient le malheur d'habiter les quartiers sales et enfoncés, les rues étroites, les maisons peu étendues et renfermant à la fois un plus grand nombre d'individus, ou bien qu'on était obligé d'entasser dans les hôpitaux. . . . .

"Il y a eu à Cadix 48,520 malades sur une population de 57,499; 7,387 ont succombé; 40,776 ont été guéris. A l'époque de la formation de tableau officiel dans lequel j'ai pris ce résultat c'est-a-dire, le 31 Octobre, 1800, il restrait encore, 357 malades.

"Il y a eu à Séville 76,488 malades sur une population de 80,588; 14,685 ont péri; 61,718 ont été guéris. Le 30 Novembre, 1800, il restait encore 85 malades.

"Il y a eu à Xerés, sur une population d'environ 33,000 individus, plus de 30,000 malades; ou en a perdu de 12 à 13,000.

"Une maison de commerce des plus respectables de Cadix, Hambourgeoise d'origine, était composée de quatorze individus; elle se trouva réduite en quelques jours à un seul.

"Il ne me reste plus maintenant qu'à rendre compte des faits fournis par l'Inspection Anatomique. En comparant entr'eux les résultats des recherches anatomiques faites tant en Espagne qu'en Amérique, nous aurons occasion de recueillir de nouvelles preuves confirmatives de notre opinion sur l'identité parfaite de la maladie de l'Andalousie, avec celle qu'on a vu plusieurs fois ravager diverses parties de l'Amérique.

"En examinant l'estomac, on y découvrait les traces d'une phlogose récente, qui avait été suivie d'erosion de la membrane interne de ce viscère: il était même quelquefois gangrené, principalement du côté de son orifice supérieur: mémes lésions dans le tube intestinal, sur lequel on observait toujours des taches gangreneuses dans divers points.

"Enfin je me bornerai à faire remarquer que les résultats de l'inspection anatomique faite à Cadix sont en tout exactement conformes à ceux qui nous ont été transmis par les Auteurs qui ont écrit sur la fièvre jaune.

"Les faits que je viens de rapporter ne sont-ils pas suffisans pour confirmer l'opinion qui a été émise relativement à la véritable origine de la maladie, au temps de son invasion, dans les principaux lieux qu'elle a parcourus, ainsi qu'au mode de sa propagation."

From 1800 Spain continued healthy (excepting a slight appearance at Medina Sidonia in 1801, which was checked immediately by cutting off communication with the infected) until 1803, when the disease again showed itself at Cadiz and Malaga; the towns in the neighbourhood, however, aware of their danger, established quarantine regulations, and remained healthy. At Gibraltar also rigid quarantine laws were kept in force, against all parts of Spain, by Sir Thomas Trigge, who then commanded, notwithstanding which we were very nearly suffering, in consequence of our communication with Barbary. A Moorish vessel, with papers from Tetuan, but which had actually sailed from Malaga, was admitted to *pratique;* two days after which, the master of this vessel was reported to me to have died under very suspicious circumstances. I immediately inspected the body, which was of a pale yellow tinge, and covered with petechiæ; he had died on the third day of his illness, had hemorrhage from different parts of his body, and the characteristic symptom of this disease—great irritability of stomach, which was at last attended with vomiting of a matter resembling coffee-grounds. I reported the circumstance to the Lieutenant-Governor, and recommended that the body should be buried by the crew of the vessel, and that they should be put in quarantine; the bedding was burnt, and the house whitewashed and fumigated; but in consequence of some religious scruples, an application was made by the Moorish Consul for permission to have the body removed on board the vessel, for the purpose of being interred in Barbary; this was granted, and the body having been carried on board by the crew of the vessel, she immediately got under weigh. There were fortunately no other inhabitants in the house occupied by the Moors, to which they had carried their own bedding.

During the prevalence of the fever in Spain, in the years 1800 and 1803, Gibraltar continued healthy; and remained so until the summer of July 1804, when, partly for health, and partly for pleasure, I procured three months' leave of

absence, with the view of visiting Malta and Sicily, leaving on the hospital staff, Dr. Nooth, Superintendent-General of Hospitals, with a garrison surgeon, an apothecary, and two mates. Although I had but little time in the course of my tour for medical observations, I think it necessary to mention that the summer was uncommonly warm and oppressive, from the prevalence of Sirocco winds; notwithstanding which, the inhabitants of swampy situations, in different parts of the coast of the Mediterranean, did not suffer more than usual from their customary diseases. In the month of August I visited the neighbourhood of Syracuse and Augusta in Sicily, where remitting and intermitting fevers prevailed to a great degree; at this last place the inhabitants were the most wretched looking beings I ever beheld, and such dreadful martyrs to the consequences of marsh fevers, that in many instances the shape of their liver, or ague-cake, was distinctly perceptible.

In the month of September, I went from Naples to Rome, contrary to the advice of Mr. Elliot, then British Ambassador there, as passing the Pontine Marshes at that season of the year, was described by him as most fatal; and he quoted several instances of whole families having suffered from it. I was aware that the greatest danger of imbibing the malaria was incurred during sleep, I therefore made up my mind not to delay upon the road, and with the view of expedition, took a place with the Courier; I procured a bundle of good Havannah cigars, which I produced upon my approach to the Marshes, and very little persuasion was requisite to prevail upon my companion to keep up an artificial atmosphere, so long as we remained within the range of danger. The inhabitants in the neighbourhood of those baneful swamps, had much the appearance of those at Augusta in Sicily, but in neither situation, nor on the banks of the Tiber, did I hear of any disease resembling that which prevailed in Spain, though the thermometer frequently ranged from eighty to ninety.

Having remained a very few days at Rome, I proceeded to

Civita Vecchia, with a view of embarking for Gibraltar, or any port in Spain. On my way down the Mediterranean, I touched at Carthagena, where I found the fever raging to a most dreadful degree, and was informed that it was committing the same ravages at Gibraltar.

Being most anxious to return to my post, I found myself very unpleasantly situated, there being a cordon of troops round the town to prevent communication by land, and the port was shut to prevent the sailing of any vessel, under the impression that they might introduce the disease into other parts of Spain.

I communicated my situation to the Governor, who, as a great favour, gave me leave to hire a vessel to Gibraltar. He requested me, before my departure, to give my opinion of the prevailing fever to the medical gentlemen of the place, who were aware of the disease having been of foreign origin, as they stated that it had been introduced by smugglers, and that they had *never known any disease of the same nature to have existed there before.*

During the short time I remained there, the deaths were from one hundred to one hundred and ten per day, nearly as great a mortality as usually occurred in the course of twelve months.

The moment my vessel was ready, I got under weigh for Gibraltar, where I arrived on the 18th of October. The scene of horror upon my landing, is beyond all description; at eleven o'clock in the forenoon, in the town, which used to be all bustle and confusion, there was not a soul stirring, the doors and windows were all shut; it looked like a moonlight night, and the only moving object that attracted my attention was a cart heaped up with dead bodies. 161 deaths having occurred on this day, great part of the civilians had already been swept off, and the disease had gained considerable progress among the different regiments.

The following account of the first introduction and subsequent progress of the disease into Gibraltar, is to be depended

upon; it was communicated by Mr. Kenning, Surgeon of the Royal Artillery, who had been quartered in the garrison a considerable time before, and was therefore familiar with the diseases of the climate.

"A shopkeeper, named Santo (who resided in Boyd's Buildings), arrived from Cadiz on the 28th of August, 1804, and was taken ill on the 29th; he had lodged in a house at Cadiz, where some persons died of the then prevailing fever. Mrs. Fenton (wife to Bombadier Fenton of the Royal Artillery) was the second person attacked; she was taken ill on the 3d of September, her husband and a child of the name of Roland, were taken ill on the 8th, and died on the 12th. Mrs. Boyd, who had visited Mrs. Fenton, was taken ill on the 13th, and died on the 19th; her husband was taken ill on the 14th, and died on the 16th: all those families were neighbours. The disease was confined for some time to this particular part of the town, and to those who had intercourse with them.

"An inhabitant of the name of Estrico (a neighbour of Santo's), alarmed at the mortality, moved his quarters to the south district, where he was taken ill, and from him the disease was communicated to his new neighbours, and rapidly to all the inhabitants. On the 12th of September, I visited every person then ill of the disease; they amounted to about fifty, most of them resided in Boyd's Buildings, the place where Santo was taken ill, and in ten of the families I observed that more than one in each were affected."

Some time after the disease was at an end, the above-named Santo was examined juridically at the Civil Secretary's office, and the circumstances respecting his having been at Cadiz, and residing in an infected house confessed by him.

Upon my arrival in the garrison, I found Dr. Nooth in so debilitated a state, in consequence of an attack of the fever, as to be unequal to the duty required of him. I found, also, that although the medical officers at the commencement of the disease had been nearly unanimous with respect to its non-contagious powers, they were now unanimous, with one exception, on the other side of the question.

Mr. Burd, at the head of the Medical Department of the Navy, had written officially to Lord Nelson, commanding the fleet, cautioning him against communication with the ships from Gibraltar, on account of an infectious fever having broken out there; but the only precautions taken on the Rock, to prevent the spreading of disease, was encamping the troops quartered in the town, and burning the beds of the men who had died.

But, while they were burning the beds of the men who had died in hospital, I found, that if a soldier was taken ill in barracks, he was sent to the hospital, and his comrade, either sleeping with him, or coming off guard, went into the same bed in the evening; and, as might naturally be expected, this comrade was to a certainty taken ill in the course of three or four days; the fourth day was generally the period of incubation, and this was ascertained most positively in innumerable instances. If an officer was taken ill, his servant was sent to the hospital on the fourth day. Soldiers conducting sick to the hospital, were affected in the same space of time; the only exception to this rule seemed to be in burying the dead; many persons complained of having received the contagion even from passing a dead body, sickened immediately, and several were carried off from this cause before the expiration of forty-eight hours. One man of the Regiment de Rolle, in conducting his comrade to the hospital, complained of being sick, and expired upon the road, although he was apparently in perfect health before he left the barracks.

Contagion was no longer doubted; as soon as the disease gained admission into a family, it ran through every member of it in the course of a few days; it ran through barrack rooms and whole regiments in the same way; and while this devastation was going on among those who kept up a communication with the infected, several families, who took the precaution to insulate themselves, escaped unhurt.

In my first visit to the hospitals, I found that all the orderly men and nurses had suffered from the disease, with the exception of the steward of the Queen's Regiment, and

the steward and nurse of the Barrack Artificer corps: the last two had been attached to the sick under my care in the West Indies; and my knowledge of this circumstance first impressed upon my mind the idea of the disease having a respect for the human frame, after having attacked it once. I communicated my sentiments to Sir Thomas Trigge, and requested him to order a parade of all the officers and men who had had the disease in the West Indies, at which, to my astonishment and gratification, I found 122; many of them who had been exposed to the contagion in a variety of ways, but all escaping it—not one of them had had even the slightest headache.

As I took charge of the medical department during the indisposition of Dr. Nooth, my first object was to point out the measures I supposed best calculated to check the ravages of the disorder. I drew up a code of regulations, with the view of having them inserted in the regimental orderly books, to be carried into effect by authority of the Lieutenant-Governor, under the immediate superintendence of commanding officers of regiments. I proposed, that all the men who had been in the West Indies, or who had recovered from the disease, should be employed in hospital duties, burying the dead, &c.—that a convalescent camp should be established for the men discharged from the hospital, where they should have their linen and clothes washed, before being allowed to join their regiments,—that the men in barracks, who had not had the disease, should be moved to camp,—that whenever a soldier was taken ill, he should be carried to the hospital by men who had passed the disease, his bedding and tent washed, —and that all the other men in the same tent should be sent for a certain time into a quarantine of observation.

Although those regulations were not carried so early or so fully into effect as I could have wished, they proved so far successful, as to save 1200 of the soldiers from an attack of the disease, and is a convincing proof of what might have been done with a view of putting a check to it at its com-

mencement; for, out of the civil population, which, in the month of August, amounted to nearly 14,000 souls, I could only trace twenty-eight individuals who escaped an attack of the disease, and twelve of them had been attacked with this same fever at a former period, either in the West Indies, at Philadelphia, or in Spain.

This advantage of separation, however remarkable among the troops, was still more so in several families which cut off communication with the affected. Col. Fyers, of the Royal Engineers, with seven in family, besides servants; Col. and Mrs. Darby, with Capt. and Mrs. Wilkinson, of the 54th regiment; Capt. Dodd's family; Mr. Straith and family, were the only persons that cut off communication, and the only persons that kept clear of the disease, until the beginning of December, when Col. and Mrs. Darby, with Capt. and Mrs. Wilkinson, fatigued with their quarantine, and considering the disease so far got the better of, as to be safe from its attack, returned into town to their quarters, where they all, as well as their servants (with the exception of Col. Darby, who had had the fever in the West Indies), were attacked with the disease, and of which Capt. Wilkinson died.

The 57th regiment arrived at Gibraltar, during the prevalence of the malady, as a reinforcement to the garrison; it had been in the West Indies some time before, and had a considerable number of men who had had the fever when quartered in the island of Trinidad; and, as their service on shore was very much wanted, they were allowed to land, and, having been employed in attending upon the sick and burying the dead, without any one of them having been taken ill,—added to the proofs of the disease not attacking a second time.

I mentioned before, that all the hospital attendants were attacked with the disease inside the garrison. The same took place on the neutral ground, and on board ship, where the patients were crowded, or where there was not a free ventilation. Several families, crowded on board ship, suffered severely from the disease, while in other vessels, where the

number of passengers was small, and a free circulation of air kept up, the contagion was confined to the few individuals who had carried the disease on board with them.

During the progress of this disease, as I have described it, in the West Indies, and in Gibraltar, we have seen the strongest proofs of the existence of contagion, and of its attacking the human frame but once; and when the disease first made its appearance at Grenada, Dr. Chisholm particularly noticed its attacking natives and Europeans, who had been assimilated to a warm climate, in a comparatively mild form. He mentions, that, of fifty-six men belonging to the Ordnance department (who had been three years in the West Indies), attacked with the disease, only five died; and that, about the same time, twenty-six recruits, lately arrived from England, were attacked with the fever, of which number twenty-one died.

Of this last peculiarity of this disease, we had, at Gibraltar, a most convincing proof, in the 10th regiment of infantry, which had been quartered several years in the East Indies,—eight officers (who had been in India), belonging to this regiment, were attacked with the fever, and all recovered. Seven officers, who had not been in India, had the disease in so different a form, that five of them died. Four hundred of the men who had been in India, were attacked with the disease, of which number only four died; and, of forty-eight who had not been in India, sixteen died.

This was proved most remarkably in the case of the troops at the island of Boà Vista, during the prevalence of the fever there (after having been imported by the crew of the *Eclair* steamer), in the year 1845. There being only forty-one soldiers on the island, thirty-two natives, and nine Europeans; of the thirty-two natives, only three died, and of the nine Europeans, eight died. The same was the case with the English residents: eight were attacked, of which number seven died.

As the disease might be said to have commenced at

Gibraltar on the 29th of August, I shall here, as a proof of the health of the troops before that time (which consisted of about 3,500 men), insert the official return of sick, made five days before.

August

MONTHLY RETURN OF SICK.—Gibraltar, [redacted] 20, 1805.

Fevers.	Pulmonic Complaints.	Rheumatism.	Dysentery.	Diarrhœa.	Dropsy.	Ophthalmia.	Lues Venerea.	Scurvy.	Wounds and Ulcers.	Contusion.	Hernia.	Mania.	Convalescents.	
8	5	2	2	4	1	1	11	2	24	1	1	1	20	Total 83

Having said this much concerning the disease, as it prevailed at Gibraltar during the last four months of the year 1804, which was the centenary of that garrison being in possession of the British Crown, and the only time that any such disease ever prevailed there before; and which, until this period, was reckoned one of the healthiest quarters for troops out of England—I shall here insert the total number of deaths during this dreadful calamity:

Officers	54	Total 5946.
Soldiers	864	
Soldiers' Wives and Children	164	
Civilians	4864	

Comparing this four months' mortality with the total number of deaths among the military during the whole of the two preceding years, viz.,

In 1802, Deaths . .	35	Total deaths in two years 91
1803, Deaths . .	56	

And, taking into consideration that no such disease, during one hundred years, had ever existed there before, not even in the years 1800 and 1803, when it prevailed both to the east and

west of Gibraltar, viz. at Cadiz and Malaga—both places distant about forty-five or fifty miles in a direct line,—when, if any noxious change existed in the atmosphere, we cannot suppose that it could have been confined to particular spots, or that a good police or quarantine regulation could have had any influence in altering it; for it was to this alone that Gibraltar, as well as many villages in Spain, escaped its baneful influence.

During the month of December few cases occurred; and as soon as the weather became moderately cool, the convalescents recovered rapidly, and disease had disappeared by the 1st of January.

I here insert a return of sick to the 20th of January, 1805, than which I do not think a more powerful argument can be used against the idea of this disease belonging to the tribe of intermitting or remitting fevers, every person who has had the smallest experience in them must acknowledge that they are very generally connected with a derangement of the biliary system, and that a common sequel of such is a chronic affection of the liver; but here, out of many hundreds who had had the fever, we have only four cases of liver affection, and they were men belonging to the 10th regiment, who had contracted their complaints in India.

MONTHLY RETURN OF SICK.—Gibraltar, ~~August~~ January 20, 1804.

Fevers.	Dysentery.	Pulmonic.	Hepatitis.	Rheumatism.	Wounds and Ulcers.	Scurvy.	Fracture.	Lues Venerea.	Intermittent Fever.	Convalescents.	
	3	6	4	6	12	17	1	2	1	22	Total 74

From 1804 the garrison enjoyed the most perfect health until 1810. The occurrences in this last year, which I shall

now mention, prove beyond a doubt the existence of a distinct and specifically contagious disease, which may be prevented, or rendered comparatively harmless, by the establishment of such precautionary measures as are had recourse to, with success, against plague, smallpox, &c.

During the prevalence of the contagious fever at Carthagena in 1810, four transports from that port (two of them having on board deserters from the French army) anchored in the bay of Gibraltar on the 19th of September; they were immediately put under the restraint of quarantine. I went alongside for the purpose of inquiring into the state of health of the men, when I was informed that one was already dead, two were dangerously ill, and several others had been attacked with fever, which showed itself in all the four transports in the course of a few days.

Knowing the danger in which the garrison was placed, I made a representation to the Lieutenant-Governor, pressing him to order the ships to get under weigh for the lazaretto at Minorca; and just as this was upon the point of being executed, information was received that the vessels would not be permitted to anchor there, the establishment of the old lazaret having been given up, and the new one, which was then building, not being ready for the reception of passengers or goods. I then urged the necessity of procuring more vessels, for the purpose of separating and affording better accommodation to the troops, who were very much crowded. From unavoidable delays, these additional vessels were not procured so soon as could have been wished. At last, however, two hulks were appropriated for the purpose intended, but not before the disease had gained much ground, and many of the soldiers and sailors had suffered from it. Thirty-seven of the soldiers who had hitherto escaped it were put on board one hulk, and forty on board the other.

As my object was to prevent the disease being communicated to those who had not passed it, I procured a supply of new blankets, and a suit of new clothing for every soldier to be

removed. This supply was put into the hulks, and every man, before going on board, was stripped and bathed, and his old clothes and bedding destroyed. Several men who had passed the disease were also on board the hulks, who had orders immediately to separate any man who had the slightest complaint, and to make a signal to the hospital-ship for a boat, which was constantly in readiness to remove them.

During the course of the first ten days, six men were removed to the hospital-ship from one hulk, and eight from the other, after which the disease disappeared, and sixty-three soldiers were saved from an attack of it; while all the sailors who remained on board, exposed to the contagion, were attacked by it. Dr. Arthur, now Deputy Inspector-general of Hospitals, who most humanely and courageously volunteered his services, was attacked with the disease on the fourth day after going on board, and from which he very narrowly escaped with life, having suffered most severely from that so often fatal symptom, the irritability of stomach.

During the time that the disease had been going on on board the transports in the bay, the garrison continued in perfect health until the 20th of October, when, in consequenee (as I must suppose) of a breach of quarantine regulations, which however could not be detected, a Minorcan family in the south district, belonging to the dockyard, was attacked with the disease. The first information I received of it was on the morning of the 26th of October, in consequence of the death of one of them (a young man, clerk to Mr. Boschetti). He had been pronounced convalescent on the 24th, having, as the medical person who attended him supposed, a remission of all his bad symptoms, which proved to be only a prelude to gangrene of the stomach.

I immediately visited the family, and found, from the history of the case of the deceased, and the situation of the other members of the family and their friends, that the disease which we had so much reason to dread actually existed. Six out of seven persons had been already attacked in one

house, and several other families, neighbours who had visited them; as also a Spanish priest who resided in town, at the distance of a mile from the infected district, but who had visited professionally the brother of the deceased, a carpenter in the dockyard, the first person taken ill, and who I suspected of having communicated with the infected transports in the bay.

I was aware, from what I had seen in 1804, that the only way of cutting short the contagion was by the most prompt and decisive measures, to separate the sick from the healthy, and to prevent any communication between those persons who might be suspected of having imbibed the disease and the other inhabitants. I knew also that every art would be resorted to with the view of avoiding quarantine regulations, if the necessity of having recourse to them should be made public. I communicated my opinion to the Lieut.-Governor, who gave me full powers, with the assistance of the Town-major, to take such measures as I might judge best.

I directed a sufficient number of tents to be pitched outside the gates of the garrison, on the neutral ground, with a proportion of bedding, &c., and, at twelve o'clock at night, without any information having been communicated to the inhabitants, a strong guard, with a sufficient number of carts, proceeded to the infected district, and conveyed the different individuals of the infected families, sick and well, with their baggage, to the encampment, which was established as a lazaret, and kept in quarantine. I placed the sick in separate tents, and appointed persons to attend them who had had the disease at a former period. A cordon of troops was also established round the infected part of the south district, which was kept in quarantine for fourteen days. Persons who had passed the disease in the year 1804 were appointed to superintend the purification of the houses, furniture, &c., and to report the slightest appearance of disease among any of the inhabitants, who were paraded and inspected daily by one of the hospital staff.

Within a few days after the removal of the sick, several persons (all neighbours of the first family taken ill) were declared to be infected, and removed under the necessary precautions to the neutral ground.

On the morning of the 28th, Mr. Kidstone, surgeon, 7th Veteran Battalion, also reported to me the deaths of two men of that regiment, and that he had several other cases of fever in the hospital, which he suspected to be of the same nature. Five fresh cases of fever were also reported in the barracks in the course of the day.

I did not hesitate as to the measures which I ought to recommend, and in the course of next day the whole regiment, with the hospital establishment, was removed to the neutral ground. Ten soldiers, who had had the disease in the West Indies, were left in barracks for the purpose of whitewashing and fumigating them; and I recommended Mr. Kidstone to employ the same description of men in attending the sick.

Very few men were reported sick after the regiment moved into quarantine. Three of them, however, were taken ill in the same tent: six died from the disease, *who were all taken ill in the same barrack-room.*

Two cases of black vomiting also appeared in the hospital of the 4th Veteran Battalion. One officer of that regiment, quartered in the south district, died with the same symptoms; and a lady who resided in town, but who had kindly assisted the last-mentioned officer during his illness, fell a victim to it on the third day of her indisposition. Mrs. Nicholls, also (whose servant-maid was one of the first taken ill in the infected district), was carried off in forty-eight hours after being attacked with it. She was so well on Saturday before dinner as to be able to receive company in her drawing-room, but complained of chilliness and slight headache; when a medical gentleman happened to call upon her, felt her pulse, and was surprised to find it beating at the rate of nearly one hundred and forty in a minute. She had the disease in its most exaggerated form, and died on the Monday following.

The only member of the Minorcan family who has escaped the disease (a boy), continued in health during the time of his quarantine, but was attacked the fifth day after his return to his habitation, and died with black vomiting in less than seventy hours' illness.

Upon inquiry, it was ascertained that the inspector of the district had neglected to wash and purify the bed which this young man slept upon, and which had been used by some of his family when the disease first made its appearance.

The proofs of contagion here are so indisputable, that it might be thought unnecessary to make any observations upon them; I shall, therefore, only recapitulate, in as few words as possible, that Mr. Arthur, who went on board the transports, and all the sailors who remained on board, caught the disease, while sixty-three out of seventy-seven soldiers who were removed from the focus of contagion, escaped it. The disease on shore commenced in the Minorcan family, and ran through all the members of it, seven in number. The sick soldiers who died were all taken ill in the same barrack-room. Mrs. Nicholls caught the disease from her servant; and within the walls of the town (a mile at least from the infected district), only two persons were attacked with the disease, viz. the lady who had assisted Captain Boyd, and the priest who attended the Minorcan family.

I may also observe that there was no instance of any person who had passed the disease before being attacked with it, although several of this description visited and assisted the Minorcan family during the prevalence of the fever.

If further proofs were wanting with respect to the real nature of this disease, we had abundance of them at Gibraltar in September, 1813, the next time it made its appearance in that garrison, when it was again traced to importation. Mr. Fraser, Deputy Inspector of Hospitals, was the medical officer who saw the cases which first created alarm; the following extract of a letter from him, two months after the commencement of the disease, will show his opinion of it at the time.

"Gibraltar, 15th November, 1813.

"Previously to my making an official statement to the Board of Health of the absolute existence of a disease which appeared uncommon and alarming, I requested Dr. Gilpin to visit the cases on which my apprehensions were grounded, and a very short time evinced the necessity of decided opinions and firm measures. The symptoms which struck me as denoting a disorder different from the common bilious fever of Gibraltar, were the peculiar appearance of the eyes, the violent pains in the forehead and orbits, the sudden and great prostration of strength, low muttering delirium, in some cases ulcerated sore throat, livid spots, &c., together with a disproportionate fatality: these phenomena soon became more marked, and combined with a regularity of type which the malady has assumed almost universally; *a continued pyrexia of about sixty hours*, giving place to symptoms of debility and putrescency; the yellow skin and light alvine discharge, so universal in the bilious fever, being very seldom observed, and *the irritability of stomach*, with vomiting of *a dark-coloured matter*, marked most decidedly *the existence of a different disorder*. Its specific character is still more distinctly marked *by the exemption of all those during the present epidemic, who have formerly had a similar disease*, whilst former attacks of the remittent fever affords no security; the disorder proving equally violent and unsparing to every class of persons, natives, acclimatés, or new-comers, visiting every one within the walls *who had not had it before*, with the exception hitherto of about a hundred."

From queries put to Dr. Gilpin by the members of the Medical Board, it appears that the individuals who brought the disease into the garrison were ascertained; one of them was ill when he arrived; the disease was communicated to the persons residing in the same house, and speedily on both sides of the street in which the house was situated. All those

who cut off communication with the infected escaped the disease; of five hundred persons confined to the dockyard during all the time of the sickness, there was not an instance of one of them being attacked, although this was, of all others, the most likely spot for marsh effluvia to exist, and which, during the fever of 1804, suffered equally with other places, in consequence of the communication not having been cut off.

At the commencement of the disease there were about five thousand persons within the walls who had had it at a former period, either in the West Indies, in Spain, or Gibraltar; and after careful inquiry *there did not appear to be one well-authenticated instance of a person being infected a second time.* The Spaniards are so fully convinced that the infection cannot be communicated a second time, that a certificate of their having passed the disease is a sufficient passport through a cordon of troops into an infected town, which they enter without the smallest apprehension.*

Upon the breaking out of the disease nearly eight thousand persons left the garrison, the greater part of them were in huts or tents upon the neutral ground; there were very few cases of disease appeared among them, and those happened soon after their emigration, from the contagion being in the system. Upon the neutral ground there is a constant and strong breeze or current of air, sufficient to destroy the contagion of any disease, and in this way the contagion not spreading is to be accounted for this year, although in 1804, when the sick were crowded into temporary barracks or sheds upon the same spot, all the hospital attendants were attacked by it.

And if the disease had been produced by marsh miasmata, and not by contagion, we might have expected the poison to have remained dormant in the constitutions of many persons,

* Y ademas se prohibiò la entrada a los que no *manifestaban documentos* de haberla sufrido, poniendo a este fin guardias en las puertas, consultando por este medio con los sentimientos de humanidad en utilidad reeiproca. —Don Miguel Irribaren, Procurador Mayor.

and shown itself after a considerable lapse of time, as was the case at Walcheren; but of this we had in the present instance no example, for in a few days (as was the case with the soldiers on board the Carthagena transports) after being removed from the *focus* of contagion all remained in health.

In the beginning of August, 1811, it was rumoured that the same disease had again made its appearance at Carthagena. Being aware of the advantages with respect to the health of the garrison, to be derived from the establishment of quarantine, and knowing also the disadvantages which it brought upon the mercantile part of the inhabitants, as well as the many privations and inconveniences which must accrue from it to all descriptions of persons, I was averse to propose such a measure being resorted to before it was ascertained to a certainty that it was absolutely necessary. I therefore proposed to the Lieutenant-Governor, that Mr. Vance, Surgeon to the Forces, should proceed thither for that purpose, which he immediately consented to. The following are my instructions to Mr. Vance, with an extract from his Report upon his return.

"Gibraltar, August 16, 1811.

"SIR,—In consequence of it having been reported, through a variety of channels, that a violently contagious fever (of the same nature as that which prevailed along the coast of Spain last autumn,) is at present raging at Carthagena and Alicant, I submitted to his Excellency, Lieutenant-General Campbell, the propriety of sending a medical officer of experience to both those places, with the view of ascertaining its real nature, and his Excellency having approved of your being employed upon this service, he has procured from Commodore Penrose, a brig of war (the *Richmond*), which will be ready in the course of to-morrow evening to receive you on board, for the purpose of carrying you to the above-mentioned destinations; you will be furnished with letters to the British consuls at

both places, informing them of the nature of the duty you are employed upon, and requesting them to afford you every assistance in their power.

"Upon your arrival at either Carthagena or Alicant, you will make strict inquiry respecting the prevailing diseases, and should there be a contagious fever, you will ascertain the symptoms from the first attack, to the termination of the disease.—The number of days of its duration, and the day on which it generally proves fatal.—Whether it has attacked many members of the same family, or inhabitants of the same house or street.—Whether any of the persons who were attacked with it last year, or in the year 1804, have been attacked with it this year.—In what number of days the disease generally shows itself, in persons after having been exposed to the contagion.—The date of its first appearance in Carthagena this year, and whether it existed during the whole of the winter, or that its origin can be accounted for from local circumstances, or from importation. And, lastly, the number of persons that have died daily since the commencement of the disease.

"You are aware that the disease most likely to be confounded with the Bulam fever (which we have so much reason to dread), is the bilious remitting fever of this climate, and from your knowledge of both (if many cases exist), you will have little difficulty in drawing a line of distinction. The Bulam fever is remarkable for the suddenness of its attack, the violent pain immediately over the orbits, with a peculiar glassy or drunken-like appearance of the eyes themselves; the great quickness of pulse, being at the commencement from 110 to 140; the intense and peculiar heat of the skin which seems to adhere to the hand after having touched the body of a patient; the great irritability of stomach, with frequent vomiting, at first of a bilious or greenish matter, and towards the close of the disease of a brown or black colour, resembling the grounds of coffee. This last is the most fatal,

as well as the most distinctly marked symptom of the disease, and when united with a very speedy termination (proving fatal very often in fifty hours, but generally on the third or fifth day), there can be little doubt as to its real nature. Swellings in the glands sometimes occur, hemorrhages and suppression, or rather non-secretion of urine frequently, and before the black vomiting begins, there is generally great flatulence of stomach, hiccough, and a change in the countenance, from a florid colour, to a bloated, dingy, or putrid appearance; at this time also the pulse sinks very much, and beats in some cases so slow as forty in a minute. Yellowness of the skin frequently appears in bad cases towards the close of the disease; it begins in the eyes, and spreads over the body, but is generally of a *lighter colour* than the bilious remitting fever.

"In this last disease the pulse is much fuller, but not so quick; the yellowness of the skin is more frequent, begins earlier, and is of a deeper colour; *remissions are observable,* the disease continues to the ninth or thirteenth day, is rarely if ever attended with black vomiting, and, in my opinion, is almost always combined with affection of the liver; patients after recovery from the remitting fever, being very generally subject to obstruction or disease of that viscus.

"Should the wind be favorable, you will probably visit Alicant first; I shall be glad to hear from you as soon as you have visited either place (by any vessel destined for this Bay). I recommend you, when returning from the shore, to change your clothes, and bathe before you go on board, by which precaution, *as you have had the disease before,* the Brig will not be put in quarantine upon your return.

"I have the honour to be, &c.

"W. PYM.

"R. Y. VANCE, Esq., Surgeon to the Forces."

Mr. Vance's Report.

"His Majesty's Brig, *Richmond*,
September 1, 1811.

"Sir,—In obedience to the orders of his Excellency Lieutenant-General Campbell, and the instructions I received from you, to proceed to the ports of Carthagena and Alicant, for the purpose of ascertaining the nature of the disease said to prevail in those places, I have now the honour to inform you, that after making the most minute investigation in the Lazaret, City, and Royal Hospitals in Carthagena, I have no hesitation in declaring, that the same disease exists there at present, which prevailed in the years 1804 and 1810; and which, with some variations, I have witnessed so many Europeans fall victims to in the West Indies.

"The patient is generally attacked suddenly with cold shiverings, pains in the head, back, loins, and thighs. The skin becomes excessively hot; the pain of the head increases, particularly over the orbits; the eyes themselves appear to the patient as if forcing from their sockets, have a particular red or fiery appearance, and the whole face appears considerably flushed; a continual restlessness prevails, the patient constantly throwing himself from one side of the bed to the other. At this period the pulse is very frequent, seldom under 120, and generally much more; considerable irritability of stomach always prevails; the vomiting is at first of a bilious appearance, and sometimes only the drink that has been swallowed; but as the disease advances, it assumes a darker colour, and at last depositing a grumy sediment resembling the grounds of coffee. From this stage of the disease no patient has been observed to recover; and in those cases that have terminated fatally, or assumed the most serious appearance, suppression of urine has generally taken place. On the first attack the tongue has generally a white appearance, which gradually becomes darker, with a brown streak in the centre, and towards the close of the disease becomes quite black, furred, and dry. When the disease has advanced rapidly, the patient often

becomes delirious on the second day, and dies either furious or comatose on the third, and sometimes the fifth; but when the crisis has taken place on the seventh day, the black vomiting has been most frequent. In some who have died comatose on the fifth day, a considerable quantity of pure blood has been vomited up: sometimes the patient after walking about and declaring himself well, has died perhaps in a few minutes.

"About the third day the eye loses its red appearance, and becomes tinged of a yellow colour, which gradually extends to the face, neck, breast, &c.; and before death, generally assumes a lead or putrid-like appearance. The pulse previous to this has sunk considerably, and seldom strikes oftener than from fifty to sixty times in a minute. Hemorrhages from the nose, mouth, and ears, have frequently happened, and vibices have sometimes made their appearance, as well as deafness and glandular swellings.

"On the first attack the patient is generally costive, but previous to death diarrhœa often takes place, and what is voided has always a black putrid appearance, and excessively fetid smell. All these symptoms have not made their appearance in the same patient, but I have observed the whole in the numerous cases which presented themselves in the Lazaret and other hospitals in Carthagena. The disease has not been confined to any particular part of the town, *nor is any person exempt from it who has not had it in the years* 1804 *or* 1810.

"I must beg leave to observe, that the number of deaths that has taken place has not been exclusively occasioned by the yellow fever. The bilious remittent prevails here also, and in the Royal Hospital I observed many of the soldiers labouring under what we call the jail fever, which they must have brought with them from the army.

"The physicians cannot account for the disease making its appearance this year in Carthagena; but I have good reason to suppose it might have remained dormant during the winter, till roused into action again by the summer's heat; and I am more disposed to favour this opinion, from the circumstance

of their using so little precaution last year, neither destroying the bedding, clothes, or other furniture, of any of the people who died of the disease, as they had done in the year 1804; and I am sorry to observe, that they have gained very little by experience, as they pursue the same system to the present moment.

"The winds for several months have blown from the Levant, and the thermometer has generally ranged from 82 to 86° of Fahrenheit's scale.

"In Alicant there is not the slightest degree of contagion existing at present, nor does it appear to have been so free from disease of any kind at any period for a series of years back. In the town of Elche, about four leagues distant, the yellow fever is said to have made its appearance, in consequence of a soldier from Carthagena, with five or six people who assisted him in his illness, having died after a few days' sickness; but the communication with that part of the town they resided in, having been cut off, both sickness and mortality are said to have ceased; and as a cordon was placed between the two towns, and a most rigid quarantine established, had I availed myself of ocular information, I should not have been admitted into Alicant again. In Murcia, the capital of the province, and distant about thirteen leagues from Alicant, the disease has made its appearance with much more serious effects. It is also said to have been carried there by some refugees from Carthagena, and the junta of Alicant have placed it in a state of quarantine in the same manner as that of Elche. However, as the cordon is placed so far from the city, and little attention paid to persons coming from the eastward, together with the numbers of people rushing there from the various places near Carthagena, where the French have made their appearance, I am strongly of opinion that that place will not long be able to escape it. I have the honour to be, &c.

"RICHARD YOUNG VANCE,
"Surgeon to the Forces.

"Wm. Pym, Esq., Deputy-Inspector
of Hospitals, &c. &c. &c."

I think it necessary to mention here, that this disease was never known to exist at Carthagena before the year 1804, when it was traced to importation by smugglers. The next time it made its appearance was in 1810, when there was no doubt of its having been carried there by a vessel which landed twenty-six of her crew labouring under the disease, of which number thirteen died. We have in this Report of Mr. Vance's, proofs of the existence of a distinct disease, of its contagious powers, and of its attacking but once. At the village of Elche we have a fact of the same nature as what occurred at Algeziras when the disease was imported to this last place from Cadiz, it was communicated to a few of the inhabitants, and was put a stop to by cutting off communication; the inland town of Murcia we also find infected, although Alicant, a sea-port, subject to marsh fevers and agues, by cutting off communication, escaped it. The next and last proofs which I shall bring forward of the disease being *contagious*—of the disease which prevailed at Gibraltar being the same as that which prevails in the West Indies—and of its attacking the human frame but once—are the following extracts of letters from Mr. Rocket, Deputy-Inspector of Hospitals at Jamaica, to Mr. Keate, Surgeon-general, respecting the 54th regiment, which was stationed at Gibraltar during the epidemic of 1804.

Extract from Mr. Rocket's First Letter.

"Jamaica, 15th October, 1808.

"I am sorry to report that a violent *continued* fever has broken out in the 54th regiment, attended with considerable loss. It seems to be their seasoning fever, for though the corps has been twenty months in the country, it had not, ere this, been afflicted with it. The rains have been heavy and incessant for a fortnight, to which, perhaps, may be attributed the production of the disease.

"The 54th regiment (quartered at Stoney Hill) has detachments at Up Park, Apostle's Battery, and Kingston, all of

which have been attacked with the disease; thus evincing that it is not confined to a particular situation, but to a particular corps, for other regiments in the same quarters have not been affected by it."

Extract from Mr. Rocket's Second Letter.

"Jamaica, 14th November, 1808.

"In my letter of the 15th ult. I mentioned that a fever had broken out in the 54th regiment, since that period it has been going progressively through the corps, and occasioned a lamentable mortality, sparing neither officers, privates, women, nor children.

"The disease is the ardent yellow fever, ushered in with violent headache, eyes turgid and inflamed, countenance flushed, darting pains through the orbits, and in the calves of the legs.

"Mr. Redmond, surgeon of the regiment, having been at Gibraltar during the prevalence of the disease there, was perfectly prepared to encounter the melancholy and distressing scene.

"The fever is precisely the same as that I have so often seen at Martinique, Grenada, and the other Windward Islands, commonly called the ardent, continued yellow, or Bulam fever, and which has always been attended with such lamentable mortality.

"I am sorry to remark, that since its first appearance in 1793, little progress has been made towards its cure; it seems to laugh to scorn all the efforts of medicine, and the longer a medical man remains in the West Indies, the more he is puzzled in forming his opinion concerning the best mode of treatment, the proportion of deaths being nearly the same in all.

"Three hundred cases of the 54th have been admitted; there are still from 100 to 150 unattacked, and there is every reason to suppose the disease will not disappear until the whole have felt its effects.

"*It is worthy of observation, that not a single soldier of the 54th regiment (of whom there are at least forty) who had the fever in Gibraltar, has suffered from it here, and I think the same was remarked at Gibraltar, of those who had had fever in the West Indies.*"

This tropical continued fever, has been most erroneously considered a concentrated form of disease, produced by the action of marsh miasmata upon the constitutions of newly-arrived Europeans in warm climates, and that the same poison, when acting upon the constitutions of natives, or Europeans assimilated to a warm climate, only produces an intermitting or remitting fever.

How can we reconcile this opinion after reading the preceding letters from Mr. Rocket?

Here we have the 54th, the only regiment suffering from the disease, although in three different quarters; a regiment, also, which had been twenty months in that climate. If predisposition was necessary to an attack of the disease, the men of this regiment would have been certainly much more likely to have been attacked by it immediately upon, or soon after their landing from the transports, than after having been long enough in the country to have seasoned a whole army; for, I believe, the troops of St. Domingo, in much less time, lost many thousand men.

Does it not appear a strange infatuation, that men of science and ability, with such positive proofs of contagion before their eyes, should dream of seasoning, predisposition, and marsh miasmata? If they had been acquainted with the one fact, viz. that the disease attacked but once; that the other regiments in the same quarters with the 54th, having been a longer time in the country, had passed the disease, and were not liable to it a second time!—would they have attributed this prevalence of disease in one regiment, when mixed with others, to any other cause than the real one—*contagion;* when they saw it of a sudden attack and spread

devastation through a corps, sparing neither men, women, nor children, excepting the few individuals (*forty in number*) *who had passed the disease* at Gibraltar? And when this last circumstance was known, does it not appear still more strange, that some measures of precaution were not had recourse to for the purpose of checking its baneful influence? But the mistaken idea of *seasoning* still prevailed, and the other regiments having undergone this fanciful ordeal, it was thought unnecessary or impossible to attempt any measures with the view of preventing that change, which it was supposed necessary for the European constitution to undergo (even after a residence of nearly two years) in the West Indies; and it having been now ascertained that the disease has existed at Cadiz and Gibraltar, where there is no trace of marsh miasmata,—where natives of all climates *escaped a second attack* of it,—and where Europeans, assimilated to a warm climate (viz. the 10th regiment*), had it in the same continued, though in a much milder form. When, according to the general opinion, if marsh poison had been the occasion of it, the men of the 10th would have been attacked with remitting or intermitting fever; which, however, was not the case, nor was there the slightest suspicion of the existence of either of the last two diseases among the thousands who were attacked with the epidemic.

After writing the above, I received the following letter from Mr. Redmond, surgeon to the 54th regiment: which, in my opinion, throws more light upon this disease, than all the volumes which have been written upon it.

"February 11, 1815.

"My dear Sir,—Whatever service my observations may be in elucidating the subject of your queries, I freely give them in as clear and concise a manner as I possibly can.

* This regiment, during eighteen months it was quartered at the same post of Stoney Hill, in Jamaica, in the year 1792 and 1793, lost only nine men.—*Lempriere*, vol. i, p. 147.

"1st. I am decidedly of opinion, that the fever under which the 54th regiment suffered in Gibraltar in 1804, and again in Jamaica in 1808, was the same disease, and both infectious; of the latter I will state the following proof: Upon the arrival of the regiment in that island, it was quartered at Stoney Hill, a post, from its high situation, in general healthy; and from its detached position, had but little communication with other corps. In this quarter it remained nearly eighteen months, *without any appearance of the disease,* until a detachment was sent to Fort Augusta, and quartered, together with others, in barracks with the 2d West India regiment, where *several men contracted the disease;* and upon the detachment's return to the hill, the fever passed progressively through the regiment. In a few weeks my two assistants (one of whom died,) and *twenty* out of *twenty-one* hospital attendants were infected.

"As all fevers in the West Indies are too generally termed yellow fevers, and as I am convinced that this is of a distinct nature, I will call it by that name which I think most applicable; the Yellow *Continued* Fever.

"2d. Having in my possession the names of the officers and men who had recovered from the Gibraltar fever of 1804, I was particularly attentive to ascertain if any of those would be attacked with the yellow continued fever of 1808; not a single case occurred, either then or at any other time during the five years I was in that island. Latterly, men were selected from this list as hospital attendants, which duties they performed with perfect safety to themselves; the *single attendant* above alluded to, and *myself,* being marked instances of escape under that head.

"3d. I had frequent opportunities of seeing the bilious remittent in Jamaica, and of comparing the two diseases; I will therefore point out those which I consider the distinguishing symptoms.

"The yellow continued was marked by its being infectious, attacking all ages, sexes, and constitutions; appearing in all

seasons, not influenced by situation, nor its violence mitigated by a removal to a drier atmosphere, being a fever of one paroxysm, passing rapidly from high arterial excitement to exhaustion; commencing, in general, suddenly without previous indisposition. Deep-seated pain in the orbits and temples; peculiar inflamed glassy eye; pungent heat of the skin; obstinate constipation of the bowels; general torpor of the nervous system; black vomit, and early putridity after death; vibices and abrasions of the cuticle taking place, sometimes even before life was extinct. Where recovery took place, the convalescence was short, the constitution quickly returning to its former vigour.

"*I never saw a second attack of this fever, nor do I believe the human frame susceptible of its action more than once during life!!*

"Those of the bilious remittent were, its prevalence in the autumnal seasons, not infectious; more frequently attacking men than women and children, considerably influenced by a marshy situation, and benefited by a removal to a drier atmosphere; generally preceded by languor and indisposition, pain of the head, felt mostly upon the upper part of the forehead and crown, the bowels in general easily acted upon, considerable nervous irritability, nausea and vomiting of a yellow or greenish bilious matter, returning with each exacerbation; becoming, towards the latter stage of the disease, much darker, or of a brown colour (often mistaken for, though easily distinguished from, the true black vomit); death sometimes taking place in a few days; but, more frequently, the patient was *worn out by the repetition of exacerbations.* Where recovery took place, the convalescence was tedious, and subject *to relapses,* rendering the constitution more susceptible of succeeding attacks, and often laying the foundation of *obstinate intermittents,* and other chronic diseases.

"Vomiting was not a constant symptom in the yellow continued; where the stomach was loaded at the commencement, it generally discharged its contents; where it came on

in the latter stage, it could not be restrained, and ended in copious ejections of that coffee-grounds-like matter, called black vomit. In the bilious remittent this symptom was evidently accompanied by a diseased action of the liver; and although much more frequent, was a much less dangerous symptom in this than the other fever.

"Yellowness of the skin, although common to both, was not a constant attendant on either; in the yellow continued it resembled that which follows severe contusions—in the bilious remittent, more that of common jaundice.

"4th. I saw bleeding used in Gibraltar in 1804 several times, and in one instance to a considerable extent; but in all without success. In the yellow continued, in Jamaica, it was tried in a few cases at the request of Deputy-Inspector Rocket, when its effects were a rapid sinking of the pulse to an alarming degree. I feel no hesitation in saying I always found it prejudicial; nor could I ever learn that its use had been attended with success in this fever.

"5th. From no such fever having been known in Gibraltar previous to 1804, and from a similar disease prevailing at that time in Cadiz, and other parts of Spain, I am of opinion it was imported into that garrison.

"On the introduction of this fever into the regiment, (at Stoney Hill, in Jamaica,) in 1808, I stood alone in declaring my opinion, of its distinct and infectious nature, to Deputy-Inspector Rocket, who told me it was contrary to the generally received opinion in the West Indies: he, however, soon advised the usual means for the prevention of infection; and after repeatedly *comparing it with the bilious remittent*, declared they were *not the same disease*, and that the yellow continued was the most malignant fever he had ever witnessed. Although this is evidently the same disease as that described by Chisholm, I cannot speak with equal confidence of the mercurial plan; where its action could be excited recovery generally followed: but often the rapidity of the disease, and the excessive torpor of the system, resisted the power of that

or any other medicine. For what could be done with such a disease, which I have seen terminate in death in eighteen hours, frequently in thirty-six, but more generally in three days; its duration no doubt shortened by the heat of a tropical climate!"

In the short history which I have given of this disease, it is ascertained that it had never appeared at Gibraltar before 1804, certainly not during one hundred years that that garrison had been in possession of the British; that Cadiz had been free from it between the years 1764 and 1800; and that it had not existed at Philadelphia for thirty years before.

All these circumstances prove what I wish to establish, viz. that it is not indigenous in those places, nor in the West Indies; but that it has, at different times, been carried from the coast of Africa to the West India islands, and from thence imported to Europe and the settlements in America.

The first account we have of this fever being a new or imported disease in the West Indies, is from Ligon's History of Barbadoes, in which he mentions, that early in September, 1647, the inhabitants of that island were grievously visited with the plague, or *as killiny a disease;* and that, before the expiration of a month after his arrival, the living were hardly able to bury the dead.

It is also mentioned in a publication by Mr. Webster, of Philadelphia, as having prevailed about the same time at the island of St. Kitts, and in the plantations in America.

After the year 1647, no mention is made of this disease until 1686, when it was said to have been imported to Martinique, in a ship named the Oriflamme, from Siam, and was then called *la Maladie de Siam.*

Monsieur Desportes, who practised physic sixteen years in St. Domingo, says this disease got its name from its being first taken notice of at Martinique, at a time when a large fleet had arrived there from Siam, "*et dont l'équipage, pendant son séjour dans cette colonie, fut affligé d'une fièvre maligne ou pestilentielle qui fit périr un grand nombre de matelôts.*"

Mr. Hughes mentions, on the authority of Dr. Gamble, that it was very fatal in 1695, and that it was then called the *New Distemper*, or *Kendal's Fever*.

Dr. Chisholm asserts, that at Grenada, from the year 1763, when that island was ceded to Great Britain, no contagious fever, nor any epidemic of the character of the malignant pestilential fever, appeared there until 1793, immediately after the arrival of the *Hankey* from Bulam, on the coast of Africa. Sir Joseph Gilpin and Dr. Stewart, the one having been sixteen, and the other nineteen years in that island, confirm his assertion.

Sir Joseph Gilpin says, in his letter:

"Of the infected state of the *Hankey*, I never did nor ever shall entertain the least doubt, nor do I recollect that any medical man in Grenada held an opposite opinion. During a residence of eighteen years in that island, I had frequent opportunities of seeing the yellow remitting fever, but I have not the least remembrance that at any period previous to the arrival of the ship in question, a suspicion ever being entertained that it was contagious.

"During a lapse, too, of so many years, the state of the atmosphere and the prevalence of marsh miasmata must frequently have been as they were in 1793, and should consequently (the causes being the same) have produced similar effects.

"That those who visited the *Hankey* brought the contagion into the town of St. George, and that it spread from thence into the country, I have as little doubt as I have of my present existence; and I really believe that had the most determined anti-contagionist been present during that awful period, he would have become a proselyte to the general opinion.

"(Signed) JOS. D. A. GILPIN."

Dr. Stewart's reasons for believing that the fever in question when it first appeared at Grenada, was specifically distinct

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from every form of the indigenous bilious remittent, which he had ever before observed, ought, in the mind of every unprejudiced person, to be a most convincing argument in favour of the disease not having originated from marsh miasmata, and of its deserving at least a name to discriminate it from the common remitting fever of the country, viz.—

1st. Because it appeared at a season of the year which he had always found healthy, *during nineteen years* he had resided in the colony.

2dly. Because it did not particularly appear in those situations, where bilious remitting fever usually prevailed during the unhealthy season of the year.

3dly. Because there was an evident difference in the character and type of the two diseases, &c.

This disease never appeared at Lisbon but once, viz. in the year 1723, when black vomitings were observed to be the most prevailing and fatal symptom. Dr. Kennedy, Physician to the Factory there, made a report to the British Consul, for the information of Government, in which he mentions, that it was very contagious in the lower parts of the city, going generally through a family, and very few families escaping it, especially in the *close, narrow, ill-ventilated streets ;* and from the gentlemen in the country escaping it, and the families in the higher parts of the city suffering but little from it, he concludes that it is contagious only among those who are predisposed to it, by living in a close noisome air.

P. du Testre, in mentioning this disease, calls it, *la Peste jusqu' alors inconnu dans les Isles.*

Don Ulloa affirms it to have been unknown at Carthagena and Porto Bello anterior to the year 1729.

Dr. Lafuente (a Spanish author) mentions this fever to have existed at Malaga in the year 1741.

This collection of evidence, I take it for granted, is sufficient proof that the black vomit fever, for a long period, had been only an occasional visitor in the West Indies, very seldom appearing in Europe, and then of foreign origin.

HEALTH OF THE WEST INDIES.

I SHALL next bring forward proofs of the comparative health of the West India climate for a series of years, during the absence of this scourge of the human race, particularly for some time before its importation to the island of Grenada in the year 1793.

Dr. Davidson, of Martinique, in a letter to Dr. Mease, of Philadelphia, says, "It is possible in the West Indies to preserve a degree of health unknown in the variable climates of North America and Europe, and accordingly we find in the healthy islands of St. Kitt's, St. Vincent, and Barbadoes, soldiers arrived from Europe have remained there for years, and enjoyed a degree of health unknown to any other part of the world, notwithstanding their debaucheries!"

I have authority from Mr. Weir, formerly Director-General of Army Hospitals, to state, "That he arrived in Jamaica in the year 1785, from which time until 1792 only one officer died out of four regiments quartered in that island,—that the troops were in general healthy, and although fevers were frequent, they were not fatal; the 10th and 19th regiments having lost only one man each in twelve months,—that he never knew any fever of a bad type prevail there before 1793,—that although bad cases of what was called yellow fever occasionally occurred, they were solitary instances, without any suspicion of contagion, and confined chiefly to persons who committed irregularities and exposed themselves to the sun,—and that, during a residence of seven years in that island, he did not meet with more than four cases of black vomiting until 1793, when an uncommonly destructive fever made its appearance, and committed most dreadful devastation among the troops, great numbers of them being carried off with the fatal symptom of black vomiting."

Extract of a Letter from Dr. Gordon (late a Member of the Army Medical Board.)

"20th January, 1815.

"DEAR SIR,—In compliance with your request, I beg leave to state that I served in the West Indies before the revolutionary war, during the years 1789, 90, 91, 92, and was stationed at Barbadoes, Dominica, and Jamaica. The troops I served with enjoyed a high degree of health, especially those corps in which a good system of interior economy was established and preserved; the mortality was very small; the principal diseases were remitting and intermitting fevers, dysentery, and affections of the liver; the latter sometimes occurring as the primary disease, but more frequently following attacks of the other diseases. *I never saw any fever, during that time, possessing the peculiar character, or having the particular symptoms attending that disease which has been styled yellow fever, the fatal termination of which is generally attended by black vomiting!*

"I served in Jamaica and St. Domingo during the years 1793, 94, 95, 96, 97, 98. During the year 1793 the troops continued to enjoy as good health as European soldiers can ever be expected to do within the tropics, nor did any case of yellow fever occur among the troops I served with.

"Indeed, for the first six months we were at St. Domingo, there was no death by disease. The first time I saw the yellow fever was at Port au Prince, St. Domingo, soon after the British troops took possession of that place.* After that period, however, it continued to rage, and occasioned great mortality.

"I remain, &c.,

"THEODORE GORDON."

* After the capture of Martinique, St. Lucia, and Guadaloupe, a portion of the army was sent to St. Domingo, and carried the fever with it.

Extract of a Letter from Sir William Franklin (formerly a Member of the Army Medical Board.)

"London, 11th February, 1815.

"My dear Sir,—In reply to your questions, I beg leave to acquaint you that I arrived at Dominica (being at that time surgeon to the 15th regiment) in January 1791, and was stationed at Morne Bruce, which was the head-quarters of that regiment during the years 1791, 1792, and 1793. During the two former years, and for the first six months of the year 1793, the regiment was tolerably healthy (for a corps recently arrived from Europe); the most prevalent disease was dysentery, some cases of intermittent and remittent fevers occurred, but the symptoms were in general mild.

"Between July and November, 1793, more cases of fever occurred, both among the officers and soldiers, than in either of the former years; the disease also assumed a more aggravated form. No officer, however, died; the exact number of deaths among the soldiers I am unable to state, but certainly a larger proportion died than in the former years. I *then first observed the black vomit*, but it occurred less frequently than in the following year, among the troops recently arrived from Europe; I believe the sickness and mortality among the inhabitants of Dominica to have been unusually great in 1793, particularly among persons recently arrived from Europe, and among the French emigrants from Martinique and Guadaloupe.

"I remain, dear Sir,
"Yours very truly,
"W. FRANKLIN."

Sir Gilbert Blane, in his 'Observations upon the Diseases of Seamen,' says, "to whatever cause it was owing, the fleet we found in the West Indies was healthier than that which had just come from England."

Dr. Pinckard, in his 'Notes upon the West Indies,' mentions the appearance of the disease at Berbice, where it was new, not only to himself, but to the oldest practitioners in that settlement, who, as he observes in page 22, vol. iii, "with candour admitted, that the disease which they saw in the military hospitals differed from the fever which they commonly treated; and one of them, who had been as many as twelve years in active practice in the colony, was even brought to acknowledge, that in the whole course of his practice he had met with only *five cases* of what he now termed Genuine Yellow Fever; for it was observed, he says, that while we were contending with the continued fever of Europeans but lately arrived, they were prescribing for the remittent fever of the colonists;" and having selected four cases, and requested Dr. —— to take them under his care, he says, at page 80, "the bark was prescribed for them all, and most liberally administered; but in vain, for not one of them recovered! The doctor was greatly chagrined and disappointed at the unhappy result of those cases, and declaring that there was a '*something different*' in the fever which prevailed among the troops from that which usually attacked the colonists, he wished me better success, and withdrew his attendance."

As it has been generally asserted that the disease originated in consequence of some morbid change in the atmosphere, I think it necessary to call my reader's attention to the periods at which it made its appearance, not only in the different West India islands, but in different parts of the world.

It first showed itself in Grenada in the month of February, 1793, at a time when the bilious remittent fever does not prevail; at which period, also, and for a considerable time afterwards, all the other islands continued healthy. It did not reach the island of Dominica until between the months of July and November; Barbadoes kept clear of it until the beginning of 1794, at which time we found all the French islands healthy. St. Domingo did not suffer from it until

late in 1794, and then, in consequence of the introduction of the contagion by a detachment of troops from the island of Guadaloupe. Philadelphia was not visited by it until the month of July, 1793, nor Cadiz and Malaga until the year 1800. I may also add, that it has never appeared in Europe before the end of July, and has always been destroyed by cold towards the end of December.

I shall now bring forward evidence to prove that the troops in the West Indies, before the year 1793, enjoyed, in many instances, as high a degree of health as in any part of Europe, and having had permission of His Royal Highness, the Commander-in-Chief, to examine the muster rolls of regiments stationed there before and after the appearance of the fever in the year 1793, I shall give a statement of the mortality in different corps before and after that period.

Dr. John Hunter (Diseases of the Army, Jamaica) mentions that in the years 1781-2 there was a striking proof of the salubrity of Fort Augustus. A corps of Royal Americans, under the command of Lord Charles Montague, were quartered there upwards of nine months, during which time they lost only two men.

And in 1782 and 1783 (he says) the 19th and 38th regiments, stationed at Stoney Hill, enjoyed a degree of health little, if at all, inferior to what might have been expected in any part of England; they seldom had more than twenty sick in hospital, and the proportion of deaths was altogether inconsiderable.

During twenty months that the 54th regiment, mentioned by Mr. Redmond, page 72, was quartered at Stoney Hill, it lost only fifteen men; but in 1808, when the contagion was introduced into that corps, it lost, in the month of October, one hundred and twenty-seven, and in November, eighty-four men, making the mortality, in two months, amount to two hundred and eleven.

The 9th regiment, quartered at Brimstone Hill, in the island of St. Kitt's, in five years, viz. between 1787 and 1793,

lost only seventeen men; the same regiment, when attacked by the disease in 1794, lost one hundred and eighteen men within a very short period.

The 15th regiment, to which Sir William Franklin was surgeon when quartered in the island of Dominica, I found, from the examination of the muster rolls,

lost between June 1790 and June 1791,	17	} 50 men in 3 yrs.	
June 1791 — June 1792,	20		
June 1792 — June 1793,	13		
and from June 1793 to June 1794,	93	— in 1 year.	

The 13th regiment, to which Dr. Theodore Gordon was surgeon, in Jamaica,

lost in the year 1790,	1	} 42 men in four years,
1791,	10	
1792,	22	
1793,	9	

and in 1794, 136 men in 1 year, from contagious fever.

The 66th regiment, quartered five years in the island of St. Vincent, viz. from the year 1786 to 1791, lost only thirty men, when it embarked for the Mediterranean, and after remaining there four years, returned to the island of St. Domingo in 1795, where, in six months, it lost,

Officers,	Sergeants,	Corporals,	Drummers,	Privates,	Total
9	20	19	9	202	259

It is necessary to remark, that this corps had undergone a very great change in the Mediterranean, having drafted a great proportion of the old soldiers, and received drafts from young regiments.

The 69th regiment, which had been some years in the Mediterranean, embarked at Gibraltar for St. Domingo, where it arrived in December, 1795, and, in six months, lost,

Officers,	Serjeants,	Corporals,	Privates,	Total
17	27	26	243	313

I might mention other regiments which arrived in the West

Indies after 1793, among which were the 82d, 103d, and 31st, and after remaining there a very short time, returned to Europe mere skeletons, not having a sufficient number of men left, to complete their establishment of non-commissioned officers.

As it has been supposed by many that this disease has been much aggravated by the change which the constitutions of the soldiers underwent during the fatigues of the campaign, I shall mention a contradiction to that opinion by two remarkable instances of regiments landing during the prevalence of disease, and being quartered in barracks without marching a mile.

The 2d, or Queen's regiment, landed from England at Fort Royal, Martinique, in February or March, 1805, and in the month of April lost fifty-five men, and in May forty-two—ninety-seven men in two months.

The 35th regiment landed at Basse Terre, Guadaloupe, on the 12th of May, 1795, and by the 31st of the same month had lost twenty-eight men, and by the 30th of June, 108. These two regiments, as mentioned before, had landed from the transports, and marched quietly into barracks in which the contagious fever had prevailed, but from not having been suspected to possess this noxious power, and the disease being considered only the seasoning fever, no precautions were used against it.

Dr. Jackson, in writing upon fever in Jamaica, says, "The appearance of the yellow fever is observed to be only a rare occurrence : it has likewise scarcely ever been known *to attack the same person twice.* The *remitting fever*, on the contrary, does not cease to attack such as have resided the greatest part of their life in those climates ; a proof, he says, that there actually exists some essential difference between the two diseases, and that the revolution of a season or two destroys, in the European constitution, a certain aptitude or disposition for the one disease, which it still retains for the other."

Dr. Ferguson, Inspector General of Hospitals, says, p. 7, "Remittent fever is an annual of the eastern tropics the same as the west. The remittent fever often runs the patient into

the grave, but seldom with black vomit—the true yellow fever always!"

The following extract from Dr. Flores Moreno, gives, in a few words, the opinion of the Spanish physicians respecting this disease: "Es indudable que esta enfermedad proviene de un contagio. Su modo de aparecer, el de propagarse, y aun el de extinguirse, asi nos lo manifiestan. Jamas se ha observado entre nosotros sin que haya sido transmetida de ostros paises: jamas ha pasado los limites que le han sido puesto en tiempo, quando la vigilancia de los magistrados ha hecho se tomen medidas oportunas para impedir los progresos del contagio; o quando los pueblos, solicitos de su conservacion, le han cerrado sus puertas, cortando todo communicacion con los que se hallaban infestados. Nunca se ha observado atacase esta enfermedad en los principios sino á aquellios que habian communicado con sujetos afectos de ella misma, ó con personas, ropas ó enseres procedentes de los Buques ó pueblos infestados."

In Dr. M'Lean's work upon Diseases of St. Domingo, I find that the 82d regiment had a very short time before been quartered at Port au Prince, and in consequence of their sufferings there, had been removed to Mirebalais as a healthy quarter. Page 221, he says—"The 82d regiment, one of the finest I ever saw, was stationed in this quarter, to which they were sent as a refuge from the devastation of Port au Prince, *where numbers of them had already perished.* It is melancholy to relate that they here found no sanctuary, and returned in a few months not twenty men strong. This beautiful corps, in less than a year, lost upwards of eight hundred men, and twenty officers."

The following extract from the same work also convinces us of the existence of a new and a contagious disease having been imported into the island of St. Domingo.

"The Croix de Bouquet *is found tolerably healthy* by the French inhabitants, but it has proved fatal to the few British who resided there.

"St. Mark's, *formerly* pretty healthy, has proved fatal to our troops; part of the 92d regiment landed there, and *were soon exterminated to a man!*

"Our troops have also suffered much at L'Arcahaye, which *formerly* was reckoned a very healthy situation!"

These quotations, from the highest authority, prove that, for several years before 1793, there was no instance of that species of disease prevailing epidemically in the West Indies, which is characterised by black vomiting; and that regiments had been stationed there for many years together without undergoing that seasoning which has been looked upon as necessary for the European constitution.

And, on the contrary, that after the appearance of fever in Grenada, in 1793, every station for troops, however healthy before, suffered severely from the contagion, after its introduction into the different islands.

Having said this much, with the view of proving, that the disease in question is contagious,—that although it has made its appearance at different times in the West Indies, it is not constantly resident in the islands,—that its powers of contagion and destruction are increased by heat, and destroyed by cold,—and, lastly, that it attacks the human frame but once; and having done this, I trust, to the conviction of every unprejudiced mind, I must consider it established, that it is a disease perfectly distinct from the Remittent Fever produced by Marsh Miasmata.

Authors, from being unacquainted with the peculiarities of this fever, have been at a loss to explain the various phenomena attending it. They have drawn all their inferences from the contagion of typhus, which they supposed could not exist in a certain degree of heat; they have taken it for granted that, if the Yellow Fever was possessed of contagious powers, they were of course of the same nature; and not aware of the influence of heat in its propagation, they have

decided upon it as a non-contagious disease, from its being governed by circumstances contrary to the known laws of the contagion of typhus.

And not being aware of its attacking the human frame but once, or of the clemency which it displays towards the natives of warm climates, or acclimatés, they have described it, if possessed of any contagious power, as having a very uncommon and peculiar appetite, looking out for strangers, and avoiding the inhabitants of its own country.

But, however strange and unprecedented as are its propensities, and however irreconcileable with established principle, they have been most amply confirmed in every particular at Cadiz, Gibraltar, and in the United States. It being a disease of rather a whimsical character, but regular in its irregularities, and with which being now intimately acquainted, we can satisfactorily explain—why it should attack whites more severely than blacks?—why it should prefer a robust European to a languid Creole?—and why it should respect the sable race of the West Indies, yet attack the Negroes of North America?

If either heat or marsh miasmata can be supposed capable of producing black vomit fever, how is its non-existence in the East Indies, Egypt, and Turkey to be accounted for; where we have the marsh fever in its worst form, under jungle and other names, without any suspicion of contagion, and where no disease with the vomito-negro symptom of the fever of the West Indies, Cadiz, or Gibraltar, has been mentioned by any author? and I have the authority of Dr. Ker, formerly one of the members of the Army Medical Board (who had seen the disease in the West Indies, and who resided several years in different parts of the East Indies), to say, that in that country, Hindostan, the Deccan, or even in Ceylon, he never met with, nor heard of any disease that was attended with the black vomit, or that peculiar livid appearance of the countenance, or, in fine, any disease resembling the Bulam fever.

This fact alone ought to settle the question as to the black-vomit fever being only an aggravated type of the bilious remittent; for, in the East Indies they have not only the marsh miasmata in the highest degree of concentration, but at all times a sufficiently high degree of atmospheric heat to produce the supposed change in the marsh fever. No explanation of this circumstance, however, has been attempted.

Dr. Lempriere, vol. ii, p. 6, after describing what he calls the tropical continued fever, observes: "But there is a variety of this disease, concerning which some doubts may be entertained, whether it be not of an infectious tendency; and it is that which has proved so rapidly fatal to many of the soldiery, but more particularly to all seafaring people." It appears to him to be a combination of *tropical endemic and typhus fever*, or rather a disease arising *from the united action of marsh miasmata and human effluvia*, on constitutions predisposed to receive their influence.

His description of its symptoms corresponds exactly with what is mentioned by all authors as the most aggravated form of this disease, viz. hemorrhages, yellow suffusion of the eye and neck, livid countenance, and black vomiting. He says he had no opportunity of seeing the fever which occasioned so much mortality among our troops at St. Domingo, but that he was informed from the best authority, that in both places the symptoms exactly corresponded, and from the troops having arrived under similar* circumstances to those in Jamaica, *he could not admit a doubt in his own mind of the disease in question being of a contagious nature*, and of its differing in some very essential points from the fever (bilious remitting), which generally proves so fatal to newly-arrived Europeans in Jamaica.

Here we have Dr. Lempriere, one of the strongest advocates against the contagion of the West India epidemic, describing

* Namely, arriving from Martinique and Guadaloupe carrying the disease with them; the Bulam fever raging at both islands at the time of their embarkation.

the very same disease in its worst form, unable to account for its contagious powers but by supposing it a new and a different fever, a mule, the progeny of two different powers, or two distinct diseases, but retaining the characteristic and fatal symptom of its tropical mother, the black vomit, a symptom, though very rare in any other disease, even in the West Indies (many medical men having resided years in that climate without having once seen it), is an almost constant attendant in the last hours of the contagious epidemic fever, not only within the tropics, but in Europe.

At page 97 he says: "In the year 1793 the island of Jamaica experienced its share of sickness and mortality which prevailed throughout the West India colonies; and the town of Kingston was more exposed to this *calamity* than any other part of the island. The disease appeared in a form so different to what had marked a number of years, that the faculty were equally at a loss to trace the source, as to define its character, or to decide, upon principle, what ought to prove the most successful mode of treating it; and, perhaps, in the history of medicine, there never was a disease which gave rise to such opposite opinions as that which proved so fatal to the West Indies. By one party it was considered to be the endemic remittent in a more aggravated form, while the other classed it under the head of a new disease, originating from contagion, but marked with symptoms differing materially in their appearance and termination from those infectious diseases which frequently occur in Europe."

Dr. Lempriere acknowledges himself, as well as most of the medical men in the island, at a loss how to account for the symptoms prevailing in this calamity, or new disease. He confesses that they were very different from what had appeared for a number of years before.

The mystery, however, in which the medical gentlemen of Jamaica were involved, is now unravelled, by it being ascertained beyond a doubt, that the disease in question is neither the produce of marsh miasmata, nor of typhus, nor a constant

resident in the West Indies, but of foreign origin; and that when it does prevail, it favours the natives or persons who have been long residents, by attacking them in a comparatively mild form; and having attacked them, or newly-arrived Europeans once, their constitutions are rendered as proof against it a second time, as against a second attack of smallpox. And, however contrary to old and generally-established opinion, I no more consider an attack of this disease as a necessary seasoning to the European constitution in the West Indies, than I should consider an attack of smallpox a necessary seasoning to the constitution of a native of Otaheite newly arrived in England; if he is kept out of the way of contagion, he will escape the disease!

Dr. Gillespie, physician to the fleet, page 48, says, "Infection could, in many instances, be traced, and appeared to operate as well through the medium of terror as that of the effluvia emitted from the bedding and persons of the patients. Of this a melancholy instance happened about this time in an armed sloop, into which a draught of about fifty men had been judiciously sent in order to cruise, and thereby be preserved from sickness; but *the contagion* having been carried on board previous to her sailing, and the officer who commanded her being destitute of medical aid, the men were attacked in succession, and three fourths of them died."

The variety of opinions, not only with respect to the nature of the Bulam fever, but with respect to the very different methods adopted in its cure, are strong proofs of the existence of two distinct diseases; and from what I have advanced, I hope I do not say too much, when I assert that I have established them.

The one, of foreign origin, of a continued form, contagious, attacking the human frame but once, and capable of naturalizing itself in any permanently warm climate (at least for such time as it can be supplied with subjects susceptible of its influence); but, fortunately, only a visitor in Europe, or on

the continent of America, where the cold of winter is sufficient to destroy it.

The other, the bilious *remitting* fever, the endemic of all marshy situations in warm climates, differing from the first in not being contagious, attacking the human frame repeatedly, and having very little respect for the white or even black natives of a warm climate; and that after an attack of this last fever, patients are very liable to suffer from ague and liver affections, which is not the case in the first.

The annual prevalence of this remitting fever at a certain season of the year only, marks decidedly a distinct disease, originating from a known cause; and the existence of the other disease (the Bulam fever) has been proved *at all seasons* in the West Indies, even in what are reckoned the most healthy situations, and where marsh miasmata do not exist. It is not, however, surprising, that during the prevalence of both diseases in swampy situations, at the same time, they should have been confounded; and that the constitutions of many persons, from having been exposed to the contagious and marsh poisons at the same time, might have imbibed them both, as has frequently happened with the contagions of small-pox and measles; which, from the established laws of Nature, not being allowed to show themselves, or to exist at the same time in form of disease; it is not only possible, but extremely probable, that they showed themselves in succession; the Bulam fever apparently terminating in remitting or intermitting fever, and *vice versa;* the occurrence of which circumstance has confirmed the advocates for non-contagion, and persons not acquainted with the two diseases, in the mistake of their being *actually one*.

From all that I have seen of the Bulam fever, I am inclined to think that it bears a much nearer resemblance to scarlet fever (when under the form of scarlatina anginosa), than to remitting or intermitting fevers, from its attacking the human frame but once; from its being attended with a peculiar

inflammation of the internal coat of the stomach; having a tendency to run into gangrene.

From what I have said in the foregoing pages, it will appear evident (and I wish it to be impressed upon the minds of surgeons of the navy and army), that, by the establishment of certain regulations and precautions, this disease may, at all times, be prevented or cut short in Europe, and that much may be done with the same view in the West Indies and on the coast of Africa.

The same precautions, however, are not necessary against it in Europe during the winter or spring ; for, from experience we know that a moderate degree of cold destroys it, and that ships having the disease on board when sailing from the West Indies, generally get rid of it soon after entering the cool latitudes.

It is different, however, as regards steamers arriving during the summer months direct from the coast, with the disease on board, or having had it on board during a short voyage.

The success of the arrangements which I made at Gibraltar, with the view of preventing its entrance in 1800 and 1803, and of checking its progress in 1804 and 1810, are proofs of what may be done, even after the disease has gained considerable ground.

When consulted by the Lords of Her Majesty's Council, in matters relating to Quarantine, I have invariably given it as my opinion, that no danger is to be incurred from the importation of this disease into England, excepting during the summer, and even then, under a combination of circumstances, viz. a ship arriving with the disease actually on board, or having had it on board during a short voyage.

Even in a warm climate, I look upon a very short quarantine as necessary against this disease, as experience tells us, that the poison remains dormant in the system only a very few days ; but at Gibraltar I always thought it necessary, even after the expiration of quarantine, for the bedding and apparel (belonging to persons arriving in ships, on board of

which the disease had prevailed) to be immersed in water before being allowed to be carried on shore.

It is not my intention to enter into a detail of quarantine regulations, but I cannot help remarking, that when suspicious circumstances make it necessary to call forth exertion, it ought to be done promptly and decidedly; no time ought to be lost in waiting for the assembly and deliberation of a Board of Health, which, at this moment, ought to consist of the officer commanding, and the principal medical officer. No favour or affection ought to be shown to any class of individuals; the family, sick and well, and every person who had been known to visit them after the commencement of disease (*who had not had it before*), ought to be removed to an open airy situation (where we know the disease will perish, and there be kept in quarantine. I look upon it as absolutely necessary to remove them from the streets of a town, particularly one situated like that of Gibraltar, which, during the prevalence of a mild east wind, is sheltered from the breeze; by which the contagion is allowed to accumulate in the apartments, and in a highly concentrated state; (from the ventilation which is occasioned even by the opening of a door,) finds its way into the streets, and is communicated to persons passing, in the same way as, I believe, very frequently happens from smallpox, measles, and scarlet fever.

From what I have said, it will appear that the same precautions which are used against plague, will not prove successful against this disease. A sentinel at the door of a pesthouse, in the centre of the town, may be safe against the plague, which is communicated only by contact, or by very near approach; while he may be infected by the Bulam fever *in a close and warm atmosphere*, at the distance, perhaps, of several yards; and, *in an open airy situation*, persons may approach a patient in the same disease, perhaps even to contact, with very little or no danger.

In the foregoing pages it has been proved that the Bulam

fever is a disease *sui generis*, differing from all others, and deserving some distinguishing nosological name; produced by a specific contagion, which, when taken into the system, carries on its work of assimilation, when (with high fever) it exerts its influence upon the villous coat of the stomach, in the form of erysipelatous inflammation, which, in mild cases, terminates favorably from the first to the third or fourth day, by what may be called resolution; and in bad cases, from the second to the fifth day, in gangrene, or such other disease, as occasions the destruction of vitality in the part affected.

And, although the abdominal viscera are very rarely affected in persons who recover from an attack of this fever, the functions of the liver and kidneys are generally suspended in fatal cases, there being, for some time before death, no secretion of either bile or urine.

Having gone so far with the view of establishing the perfect character of this disease, and counteracting the mischiefs which were likely to happen in various parts of the world, from the ignorance which prevailed with respect to its contagious powers, I shall next take notice of a publication on Mediterranean Fever, by Sir William Burnett.

I shall, however, in the first place, give a short account of the Bulam Fever, as it has fallen under my own observation.

This disease, like scarlet fever, has appeared at different times in a variety of forms and degrees of malignity. It has generally been acknowledged that the higher the degree of heat, and the closer the situation, or more stagnant the air, the greater has been its virulence. On this account it is a much more terrible disease within the tropics than in Europe. Like smallpox, also, it shows a wonderful predilection for particular constitutions, attacking some in a very mild, and others in a highly-aggravated form. This peculiarity was very remarkable at Gibraltar in 1804, where, in some instances, whole families fell victims to it, while others, equally numerous (under the same treatment), escaped with only a

slight attack. The same took place at Cadiz, in the mercantile house from Hamburgh (page 17), which lost thirteen out of fourteen members of the family.

As far as my experience went, it seemed to attack in four different forms.

In the *first*, or *mild form*, it generally makes its appearance with languor and slight chills, soon followed with heat of skin —quick and full pulse—uneasiness in the loins—severe headache, confined chiefly to the orbits and forehead—the eye has a peculiar shining or drunken appearance—the pulse is quick —the tongue furred, but moist, with little thirst—the skin dry—frequently sickness at stomach, with a sense of uneasiness, not amounting to pain, in the epigastric region, and a sensation of rawness or slight inflammation in the fauces and along the course of the œsophagus. These symptoms continue from twelve to twenty-four hours, when the patient, after having taken no other medicine than perhaps a brisk purgative, and sometimes (particularly soldiers when attacked soon after dinner) a gentle emetic, such as a glass of tepid water or weak camomile tea, falls into a sleep, from which he awakes in a gentle perspiration, free from pain and fever, complaining only of debility, from which he rapidly recovers.

In the *second form*, the patient is attacked more suddenly, and the symptoms run much higher: what was only languor or a slight chill in the mild form, is increased to shivering or rigors,—the headache, which is confined to the orbits and forehead, as in the first form, is excruciating,—the patient also complains much of pain in the loins and calves of the legs,—the face is flushed,—the eyes are glassy, and appear slightly inflamed,—the skin is burning hot,—the tongue in general furred, but moist, with little thirst,—in a few hours uneasiness of stomach comes on, with nausea and vomiting,—severe pain in the epigastric region, with the sensation of rawness or inflammation in the course of the œsophagus and fauces,—great anxiety,—restlessness and painful watching, with a most anxious desire to sleep,—the urine dark coloured

and small in quantity, and constipation of the bowels. All which symptoms,—from the early and repeated administration of strong purgatives, whether calomel combined with rhubarb or jalap, magnes. vitriolat., cream of tartar in form of electuary, ol. ricini, or infusion of senna (I generally prescribed those least disagreeable to the patient), assisted with laxative clysters every hour, if necessary, cool air and drinks, the saline julep *ad libitum*, sponging the surface of the body with vinegar and water, blisters to the forehead and region of the stomach,—generally give way about the second or third day, by the patient falling into a sleep, from which he awakes greatly refreshed, with a moist skin, and nearly free from pain and fever, complaining, as in the first form of disease, of debility only; from which, although it is much greater in degree, the recovery is also wonderfully rapid.

In this form of attack, however, this relief from pain and apparent convalescence is often of very short duration; for, in many cases, the patient in a few hours begins to be troubled with flatus of the stomach, and distressing hiccough, and is suddenly and unexpectedly seized with faintness, sickness, and painful retchings, followed by vomiting at first, of whatever had been taken as food or drink, and very soon after by a brownish fluid, resembling dirty water, mixed with a dark-coloured flakey matter, which floats upon its surface; and, at last, by a matter resembling coffee-grounds. At this time, also, a great change takes place in the countenance, which assumes a putrid or dingy appearance, particularly with those who in health had a florid complexion; a light yellow or lemon tinge shows itself under the eyes and ears, which soon spreads to the neck and over the whole body; the vessels of the eyes appear relaxed and distended with blood; the quantity of fluid ejected, in most cases, wonderfully exceeds the quantity drank: indeed all the fluids in the body seem to be pouring into the cavity of the stomach; for, when it has to all appearance been emptied several times, and the patient thinks himself relieved from any further painful

straining, he is, in the course of a few minutes, without having tasted drink, under the necessity of again having recourse to the basin. The vomiting, in the latter hours of the disease, is attended with a peculiar loud and hollow noise, which is heard at a great distance, and is a most painful and distressing sound (particularly in camp) to those who are aware of the sufferings of the patient.

During this state of misery, the patient is sensible to surrounding objects as well as of his fate ; most restless, tossing about the bed, with the highest degree of despondency painted in his countenance, looking anxiously round upon his friends, as if asking relief, but unable to express his wants ; when, worn out with fatigue, in hopes of rest, he closes his eyes for ever, and often without a struggle.

This second attack, *paroxysm*, or *exacerbation*, as it has been called, is evidently the consequence of gangrene, or a diseased state of the villous coat of the stomach, without fever, and terminates in death from the fifth to the seventh day. There are very rare instances of recovery from this state of disease, when good nursing is of more consequence than all the medicine in the Materia Medica. The patient requires to be fed by teaspoonfuls of whatever is most agreeable, or that his fancy dictates. I have known several patients recover who had been supported for some days by nourishing injections only, the stomach being so delicate as to loath or not retain the most delicate food that could be mentioned. I have also known several patients fancy and eat with relish a raw onion, when the mention of the greatest luxury made them sick. In this delicate and diseased state of the stomach, the smallest exertion on the part of the patient is apt to induce faintness, which, when it does occur, is generally succeeded by vomiting, which it is difficult or impossible to allay. He ought not, therefore (however anxious he may be to get up), to be allowed so much as to sit up in bed ; and when he wishes even to turn round or change position, it ought to be done slowly and with assistance. In

the treatment of this disease, everything depends upon the early action of medicine upon the bowels, which must be kept open during the course of the disease; and in no complaint are laxative injections so remarkably useful.

To alleviate symptoms, blisters, effervescing draughts, nitrous and vitriolic ether, the mineral acids, punch, hock, and champaigne, the warm bath and tepid sponging, are, according to circumstances, had recourse to. In very warm weather, sprinkling the room frequently with water, and hanging up moistened sheets or blankets in the current of air, create an agreeable sensation of cold. After the febrile symptoms have disappeared, recourse was generally had to tonics; among which bark was the first in use, although, I must confess, that I had very little opinion of it as a medicine. Patients, from being indulged in moderation with whatever struck their fancy, recovered rapidly. White fish, such as soles, and fresh eggs, boiled not longer than two minutes, with bottled brown stout, or East India porter, were what I generally recommended during the first days of convalescence; and I found it more necessary to regulate my patients in the quantity than the quality of their food. I recommended them to eat little, and often; and their rapid convalescence was wonderful, without any remains or appearance of disease, excepting in those cases where the internal coat of the stomach seemed to have suffered; and several of them complained, for some time afterwards, of dyspeptic symptoms.

The third form is an aggravation of all the symptoms of the second from the moment of attack. The sickness at stomach, hiccough and black vomiting, come on much earlier; the face is much more flushed, and the heat of the skin is greater. This form of disease is also frequently attended, at an early stage, with violent delirium; hemorrhages also make their appearance very early from the nose, mouth, and ears; the liver and kidneys lose all action, there being rarely any secretion of bile or urine; the countenance changes to a livid hue, with yellowness of skin; and the patient is carried off,

frequently on the second, but generally on the third, day, very often in convulsions.

The fourth form, although not so violent in its symptoms as the third, is equally fatal in its termination. It attacks in a much more insidious manner, the patient complaining, for several hours, of nothing but languor, which is followed by chilliness and rigor, with pains in the loins and calves of the legs. The headache is not so severe, the pulse is small and very quick, heat of skin very little augmented; but there is great anxiety and oppression at the præcordia, with an indifference to surrounding objects. The bowels are obstinately constipated; no secretion of urine from the first attack; the tongue is often unnaturally clean, and of a clear shining vermilion colour. Hemorrhage shows itself very early from the gums and nose, with petechiæ and vibices; little thirst, but great irritability of stomach, with hiccough and black vomiting, attended frequently with an involuntary discharge, of the same appearance, from the bowels, towards the close of the disease; when the peculiar change of countenance, with yellow skin, takes place, attended with low muttering delirium; and death closes the scene very often before the termination of the third day.

I wish I could point out any method of treatment by which there might be even a probability of relieving the symptoms in the last two forms of disease. It is true that they laugh to scorn all the efforts of medicine!!—and certainly if purgatives do not produce some effect in a few hours after the first attack, there is little hope of a favorable termination. The contagious poison in the last two forms of disease seems, like a strong dose of arsenic, to have inflicted an incurable wound, first, on the villous coat of the stomach, and afterwards (from the great sympathy of this viscus with the brain) upon the whole system.

From the violence of the symptoms in the third form, benefit might be expected to be derived from bloodletting, but fatal experience has convinced us of the contrary.

In consequence of the mistaken theory relative to this Vomito-Negro Fever being only an aggravated type of the bilious remittent, it has been supposed to be constantly in existence *on the coast* of Africa, and that all the mortality occurring in British ships on that station has been from this last disease, and generally denominated the yellow fever.

That it is only an occasional visitor in the West Indies, the following letter to me, from Dr. Arthur, Deputy-Inspector of Hospitals, the gentleman who volunteered his services on board the transports in Gibraltar bay, in the year 1810, is a most satisfactory proof :—

"August 1, 1816.

"Dear Sir,—Having served four years and a half in the West Indies, from whence I am just returned, I am clearly of opinion that the fevers now to be met with there, differ from that which I witnessed and laboured under on board the transports in Gibraltar bay in 1810. This last seems to correspond with a disease which has not prevailed in the Windward Islands during my service there; but the destructive effects of which I have heard repeatedly described by the old inhabitants and officers who had survived it as being equal to those of the plague.

"The present endemics, though now and then putting on rather a formidable appearance, fall far short of it. The highly contagious nature of it, as it appeared at Gibraltar, was so manifest, and the circumstances in proof of it so strong, that I did not think it could possibly admit of a doubt. I remain, dear Sir, yours, &c. &c.

"JOHN ARTHUR, M.D.
"Physician to the Forces.

This statement of Dr. Arthur was confirmed by Mr. Thomas, Surgeon to the Royal Artillery, who returned from Barbadoes, where he had been quartered for three years. He

informs me that, during the time he was quartered in that island, the troops were remarkably healthy ; and that, during his residence there, he did not see any case of the disease described by me in my Treatise upon the Bulam Fever. Indeed, the general returns of sick, not only of the army, but of the navy, prove that the Bulam fever had not existed in the Windward Islands for some years before.

And, by the following extraet from a very important paper published by Mr. Ferguson, when surgeon to the African corps at Sierra Leone, in which colony he had resided sixteen years, it is elearly proved that even in this supposed nursery of the Blaek Vomit Fever, it is a rare disease.

Mr. Ferguson, in the course of his sixteen years' residence, having witnessed its prevalence during only three distinct periods, viz. in 1822 extending to 1823, in 1829, and in 1837 extending to 1838.

Extract from a publication by Mr. Ferguson, Surgeon to the African corps at Sierra Leone.

"The susceptibility of yellow fever of being conveyed from one person to another, and from place to place, by means of the effluvium arising from the bodies of the sick, is a question which has of late years been much agitated.

"The great magnitude and importance of the question, as well in its scientific as in its political bearing, calls loudly on every one who has had an opportunity of observing the progress of the disease, to contribute something to aid in dispelling the doubt and uncertainty which yet surround it. Having had an opportunity of observing the progress of the disease at Sierra Leone on three different occasions, I therefore venture to submit my mite for consideration.

"European residents have been many years settled at each of the following places along the coast of Western Africa, viz.—

Place.	By whom inhabited.	Latitude.		Longitude.	
River Senegal .	French	16°	N.	16°	W.
Island of Goree .	French	14	N.	17	
River Gambia .	English	13	N.	16	
Cackeo . .	Portuguese . . .	12	10	16	23
Island of Bissao .	Portuguese . . .	11	51	15	37
Rio Nunez . .	English, French, Portuguese	10	36	14	42
Rio Pongo . .	English, French, Americans	10	7	13	58
Sierra Leone .	English	8	30	13	—
Accra . . .	English, Dutch, Danes .	5	32	—	13
Anamaboe . .	English	5	10	1	7
St. George Del Mina	Dutch	5	5	1	22
Island of Ascension	English	7	54	14	26

"Of the above-named places epidemic yellow fever has appeared in the island of Goree once (1837), in the river Gambia once (1837), at Sierra Leone three times (1823, 1829, and 1837), at the island of Ascension twice (1823, 1838).

"The disease is totally *unknown*, and has, I believe, *never appeared at any of the other stations above named;* and several of these have been colonized by Europeans one and two hundred years.

"It is not to be wondered at that, on former occasions of the epidemic irruption of yellow fever at Sierra Leone, there were many persons who sought out with great diligence every circumstance tending to show that the disease *was not a sporadic, but an imported one.* The evidence in proof of an object so desirable entirely failed; and it is now, I believe, admitted by all classes at Sierra Leone, that on every occasion of its appearance there it has been the undoubted product of the colony itself.*

"It has been stated to me that the last irruption of epidemic fever at Ascension (1838) was caused by an extraordinary accumulation of mud and filth in a pit, after an unusually heavy fall of rain. Without questioning the efficacy or the competency of such a cause, I may merely observe that it is

* Since Mr. Ferguson's publication, it is generally believed at Sierra Leone to have been imported; the supposed source of its origin the West Indies. This information I received from the present Governor.

somewhat singular that the power of the mud pit to generate epidemic yellow fever should have remained dormant, until after the actual importation into the island of that disease by the sailors of the *Forester*.

" Before going into details, it may be here stated generally that wherever the disease has appeared on the West African station, at places other than Sierra Leone, such appearance has on every such occasion been preceded, within a very short time, by *the arrival of a vessel having the disease on board*, and the actual disembarkation of the sick at that place ; and that the disease has never appeared at any part of the station other than at Sierra Leone, excepting after such arrival and disembarkation of persons labouring under it.

"To begin with the Island of Ascension. It appears, as stated above, that epidemic yellow fever has prevailed there twice, viz., in 1823, and in 1838. With respect to its appearance there in 1823, it appears by the report of Dr. William Barry, then staff-surgeon, that yellow fever broke out at Sierra Leone in December 1822, and prevailed, with more or less severity, during the ensuing six months.

"The *Bann* sloop-of-war arrived at Sierra Leone, 11th February, 1823, and departed on the 27th March, with 'three fever cases on board ;' in a very few days the fever attacked so many, that, instead of touching at St. Thomas, as was the original intention, for cutting wood, she was obliged to proceed to Ascension direct ; she arrived there on the 25th April, but the fever had already committed such ravages on board, that scarcely a sufficient number of men were left to carry the sick on shore where they were encamped. At this time the garrison on shore were healthy, but the *Bann* had already buried 32 men. All intercourse between the garrison and the sick tents of the *Bann* was forbidden.

"In a short time, however, fever made its appearance, among the garrison ashore, in the family of a soldier's wife, who had been washing for one of the *Bann* : it first seized a boy, and

then the woman herself, and in a few days, four men belonging to the garrison were attacked. Of the crew of the *Bann*, consisting of about 130, not so many as ten escaped fever, and 38 died; and of the island of Ascension, the garrison consisting of 36 souls, five only escaped fever, and 17 died.

"The disease did not again appear at the island of Ascension until 1838. My information is not sufficiently precise as to the date of its breaking out; however, the events by which that irruption was preceded, have been sufficiently ascertained.

"H. M. brigantine *Forester* arrived at Sierra Leone from England on or about the 5th December, 1837, and remained there four or five days, at a time when epidemic yellow fever prevailed extensively in the harbour; the disease broke out among the *Forester's* crew a few days after she left Sierra Leone, on which she proceeded to the island of Ascension. Lieutenant Rosenberg (the commander) and several of the crew died before the vessel reached that place.

"On her arrival there, the sick were disembarked at Comfort Cove, from one to three miles from the barracks, where the garrison is quartered.

"A rigid quarantine was established on the sick at Comfort Cove.

"The wearing apparel of the deceased commander, Lieutenant Rosenberg, was, I have been told, taken on shore, and there sold by public auction in the garrison. The disease broke out in the garrison about four weeks after the *Forester's* arrival, and proved fatal to the commandant, a medical officer, and many of the marines. The disease on this, as on the former occasion, did not appear among the garrison at Ascension until *after the arrival of a sickly ship*, and the actual debarkation on the island of persons labouring under the disease.

"With respect to its mode of introduction at the Gambia—

"H. M. brig *Curlew* having been appointed to cruise on the

windward part of this station, was several times in the harbour of Freetown, Sierra Leone, in May, 1837, a time when epidemic yellow fever prevailed there; she left Sierra Leone to proceed to Gambia about the *middle of May,* and a few days thereafter, *while on the passage,* the *disease broke out among the crew.* She arrived at Bathurst, on the Gambia, *on the 4th June,* and Mr. Tebbs, the colonial surgeon, who was at that time also in medical charge of the troops, had the sick all removed from the vessel, and taken, not to the hospital, but to his own house, the ground floor of which he had fitted up as an hospital for merchant seamen. *Fifteen of the crew died.*

"Mr. Tebbs was laid up with the disease on *the 17th,* and died on *the 20th June.* A European boy, who had assisted Mr. Tebbs some years as a dispenser of medicines, followed his master to the grave in a few days. Thirty-three days after this, the disease appeared in the house next to that of Mr. Tebbs on one side, and immediately thereafter in the house next to that of Mr. Tebbs on the other side; it then followed an eccentric course over the town, and carried off more *than one half of the European* population.

"The island of St. Mary, in the river Gambia, has been colonized by Europeans twenty-two years. I have conversed there with several intelligent Europeans who have resided either at Gambia, Senegal, or Goree, uninterruptedly, upwards of thirty years, and by them I am assured that they never either *witnessed or heard of* the disease at Gambia *until the period* of the *Curlew's* arrival there.

"Yellow fever having appeared at the Gambia, and carried off every one whom it attacked, great consternation and alarm were in consequence excited, and several persons, who had it in their power to do so, *departed from the place.*

"Mr. Heddle, a respectable merchant of Bathurst, was among those who migrated. He left Bathurst for the island of Goree on the *9th of August,* accompanied by Mr. Stubbs, an English gentleman, and Mons. Imbert, a resident of

Goree, all in good health : the vessel arrived at Goree on the *12th of August.*

"Mons. Imbert was attacked with fever on the passage, and was landed in that state at Goree on the 12th ; he was taken to his mother's house, and by her he was attended in the most assiduous and affectionate manner until he died. The separation of mother and son was, however, of short duration ; for, the same day on which Mons. Imbert died, his mother was attacked with fever of a similar description, of which she died in four days.

"Meanwhile Mr. Stubbs, the other passenger, was attacked with fever on *the* 12*th* (the day of arrival at Goree), and died *on the* 16*th.*

"Mr. Forster, a respectable merchant of Bathurst, left Gambia for Goree on the 17*th* August, accompanied by Mr. A. Hunter, the Colonial Secretary. Mr. Hunter was attacked with fever on the 19*th*, which terminated in 'black vomit' and death, at Goree, on the 21st!!

"Between three and four weeks after the occurrences herein detailed, epidemic yellow fever broke out at Goree, and carried off a vast number of the population!!

"Goree has been colonized by Europeans upwards of ninety years, and it does not appear, either from written record or oral tradition, that the island was ever visited by yellow fever before!!

"It is hence as clear as any available evidence can make it, that, like the island of Ascension and the British settlement on the river Gambia, the island of Goree has only been visited by epidemic yellow fever on occasion of the arrival and debarkation there of persons labouring under the disease.

To begin again with the island of Ascension. It has been shown that epidemic yellow fever broke out at this place in 1823, and again in 1838, on each occasion shortly after the arrival and debarkation there of persons labouring under the disease. On each of those occasions (if the views herein deve-

loped are correct) the disease was conveyed to Ascension from Sierra Leone, but the disease also prevailed epidemically at Sierra Leone in 1829, on which occasion, although several vessels of the squadron carried it away from that place, it does not appear that in that year any person labouring under it was disembarked on the island. In that year the island wholly escaped its ravages.*

"The several places at which Europeans reside betwixt Sierra Leone and the river Gambia (some of which, such as the island of Bissao, have been colonized upwards of two hundred years), have never, so far as I can learn, been visited by yellow fever.

"I conversed on this subject at the island of Bissao, with several of the oldest and most intelligent Portuguese residents, and was assured that neither while the disease prevailed at Sierra Leone in 1823, 1829, 1837, or 1838, nor on any other occasion, has it ever appeared at that island.

"Ascension, on the one hand, and Gambia and Goree on the other, are the extremities of lines radiating from a centre at Sierra Leone; and were the epidemic appearance of the disease at those extremes to be accounted for by the influence of a generally pervading atmospherical cause, wherein lies the cause of exemption at the numerous intervening stations? and by what means did the disease at once jump from the centre to the circumference?

"The connecting links in the chain, from the nucleus of the disease at Sierra Leone, to its development at Ascension, Gambia, and Goree, appear to me to have been on every occasion sufficiently obvious, continuous, and unbroken, to render the mode of accounting for its appearance at those places exceedingly probable.

"The disease, as has been shown, having been conveyed from Sierra Leone to Gambia, and thence to Goree, occasioned the

* In 1829 the fever was carried to Fernando-Po by the *Eden*, by which the settlers suffered severely, as will appear in the history of this ship in the proper time.

greatest alarm at the French settlement of Fort St. Louis, on the Senegal: the authorities there acting on the supposition that both at Gambia and Goree the disease had been imported, *established a rigid system of exclusion on all vessels from either* of those places so long as the epidemic should continue.

"It may be considered necessary that some proof should be offered as to the perfect identity of the disease stated to have at times prevailed at the different places above mentioned, and to have been conveyed from one place to another.

"It may be difficult to accomplish this, otherwise than by the evidence afforded by the occurrence of the symptom called '*black vomit.*' This symptom is by no means invariably developed in every case—not even in such cases as terminate fatally—but wherever on this station yellow fever has prevailed in a district, the occurrence of that symptom has been sufficiently frequent *to stamp a character* on the epidemic not easily to be mistaken, and that symptom was of very frequent occurrence in each of the several epidemics stated above to have been identical with the parent yellow fever of Sierra Leone."

This account of the Bulam or Vomito-Negro Fever, I consider the most valuable document that has ever been published upon the subject. *It confirms all my assertions during the last thirty years, as to its being a very different and distinct disease from the remittent fever which prevails every year, and at all seasons of the year, in tropical climates.* The history of the importation of this fever by the *Bann* ship-of-war into the Island of Ascension, in the year 1823, as mentioned by Mr. Ferguson, is fully and circumstantially, but very reluctantly, acknowledged by Sir William Burnett, in his Report to the Lords of the Admiralty, when he was compelled, for a time at least, to abandon his delusion as to non-contagion in this fever, and to confess that the disease was imported into Ascension by the crew of that ship. Mr. Ferguson has given

an account of this fever having been a second time introduced into the same island by a ship (the *Forester*) arriving there with her crew in a sickly state. I shall, however, take another opportunity of entering fully into the history of this second importation, when making my observations upon the Report lately published by Sir William Burnett and Dr. Bryson upon the Diseases of the African Coast.

One very remarkable circumstance in Mr. Ferguson's history, is the freedom from this fever at Goree, the Gambia, and other settlements on the coast of Africa (with the exception of Sierra Leone), where the disease was unknown, and never had appeared before the year 1837, when its introduction into Bathurst, on the Gambia, took place, as mentioned, by the *Curlew* sloop-of-war, and was carried from thence to Goree by the terror-stricken inhabitants who had fled from the town of Bathurst.

Another remarkable fact is proved by Mr. Ferguson's history of this fever, viz., that from its rare appearance on any part of the African coast, very few of the naval surgeons on that station could have witnessed the black-vomit fever; so that, *like their chief*, most of them (having seen the remittent fever) must have treated that disease under the impression that it was the Yellow, or Bulam Fever.

And the different periods mentioned by Mr. Ferguson as to the existence of the Vomito-Negro Fever on the coast is most fully confirmed by Sir W. Burnett and Dr. Bryson in their African Report, but without their being aware of the circumstance, as they do not discriminate between, or are sensible of, the existence of two distinct fevers, although it was only in the years specified by Mr. Ferguson, p. 74, that there was any appearance of the black-vomit symptom, or a greater mortality than usual; and then *in those ships* only which had communicated with a port or place in *which the disease prevailed*, where they became *infected*, or in ships which had communicated with the before-mentioned *infected ships*.

The following extract from the French Report upon the Contagion of Yellow Fever I consider of some importance :—

"Lind reports that the body of a young man who died at Barbadoes, of yellow fever, having been opened at Philadelphia, spread the disease throughout the city. The same physician speaks of that which prevailed at Cadiz in 1764, as having been imported from America. The fever which broke out in the United States, in 1793, was, according to Bally, introduced there by the French colonists, who emigrated thither from the West Indies, to escape massacre. The corvette *Dolphin,* which conveyed the Governor of Havannah to Cadiz, carried to this last place the fever under consideration, which first attacked those who had communication with the baggage, but afterwards spread through the city. Great numbers of the inhabitants, who fled in all directions into the adjacent villages and country, carried the contagion along with them. Whole families who remained in Cadiz, but kept themselves insulated, escaped the fever. (Aregula.) During the epidemic at Leghorn, in 1804, we are assured that those who avoided all communication with the sick were unaffected by the contagion. (Palloni.) In 1802, a new epidemic ravaged Philadelphia, shortly after the arrival of a packet vessel from Cape François. (Bally.) Aregula observed at Malaga, in 1803, that, on every Monday, a great number of people fell ill, from their meeting together in the churches the preceding Sunday. The yellow fever prevailed at Antequerra in 1804. After a solemn procession for imploring Divine interposition, the mortality was more than doubled.

"The learned M. Thiebaut de Berneaud, who was present at Leghorn in 1804, when yellow fever desolated that city, and who addressed, on this occasion, a most animated epistle to Professor Desgenettes, entertains no doubt of the disease having been imported. I shall here give some important details of M. Thiebaut relative to this importation.

"On the 18th of August, 1804, the Spanish ship *Anna Maria* cast anchor in the port of Leghorn, on her return from the Havannah. During the voyage, almost the whole crew died of yellow fever. Having previously touched at Cadiz, she was refused entrance there; but, what was still more inhuman, she was furnished with a fresh crew and a bill of health! A few days after casting anchor in Leghorn roads, two sick men quitted the vessel, and went to lodge at an inn. Three days after their debarkation they died. Twelve others, who lodged in the same house, fell in succession; and the inn itself became a focus of contagion. A Neapolitan, who lodged at this inn, decamped, in order to escape the disease; but, six days after his departure, he was seized with yellow fever, and died. A baker of Leghorn, having sold some biscuit on board the Spanish ship, left there the bags in which it was contained, during two days, when they were brought on shore, and slept upon by the workmen of the bakehouse. These all died, as did the baker and his wife, the infection spreading through the whole house.

"A French butcher, who lodged at the inn already mentioned, died of the yellow fever, as did his wife. A French officer, and the mistress of the inn, who had visited the two persons above mentioned during their illness, survived them only four days.

"The officers of health that were stationed on board the ship during her twelve days' quarantine, almost all the caulkers that had been employed in caulking the vessel, and several inhabitants of the houses on the Mole, were seized with yellow fever, and died.

"M. Moreau de St. Méry, who lived in the midst of the most destructive epidemics of the yellow fever for thirty years, at Martinique, St. Domingo, and Philadelphia, has often seen proofs of the yellow fever being contagious; but adds, that this dreadful character does not appertain to every epidemic of that disease.

"M. Moreau de Jonnes, whose testimony also is entitled to the greatest respect, says, 'in the memorable epidemics of 1802 and 1803, which ravaged the West Indies and several parts of the United States, the yellow fever, (he maintains,) was certainly contagious.' Of thirty-two persons attached to the etat-major of the army in Martinique, thirty-one died, leaving M. Moreau the only survivor. At this period the medical officers were almost all carried off by the fever. The following authentic fact, communicated by M. Moreau de Jonnes himself, seems very conclusive on the question of contagion. The French brig *Palinurus* having, in the year 1808, moored in the harbour of Fort Royal, Martinique, was soon visited by the yellow fever. The mortality being considerable, the Governor ordered her out on a cruize, in hopes of checking the disease. While at sea, she fell in with the English brig the *Carnation*, coming from Europe, and an engagement ensued. The French captain boarded, and captured the Englishman; and the greater part of the crew of the latter were, of course, transferred to the former. Of these, a great number were seized with yellow fever. In this case no doubt could be entertained of the disease having been communicated by contagion, since the English sailors had not set foot in any part of the West Indies, and, consequently, had not been exposed to the causes of yellow fever, except on board the *Palinurus*."

From the very valuable account of the black-vomit fever at Sierra Leone, it is evident that comparatively few of the naval surgeons on the African station can have met with the disease. In the Report by Sir William Burnett and Dr. Bryson, referred to, they commence by quoting the existence of this disease, as I have said before (without knowing its nature), at Sierra Leone, in the years 1822-3, and its communication to Her Majesty's sloop *Bann* and her tender, the *San Raphael*, whose crews suffered severely from it.

It appears from Sir W. Burnett's first Report upon the

fever in the *Bann* sloop-of-war (1824, p. 20) that the very first suspicious case of the Bulam fever was observed at Sierra Leone on the 13th of December, 1822, and that this patient died with black vomit on the 21st of the month; and from the Report of the Chief of the Army Medical Department there, Dr. Barry, the disease spread gradually through the different districts of the towns, then to the seamen on board the merchant ships, next to the crew of the *San Raphael* (tender to the *Bann*), and ultimately to the *Bann* herself.

Sir William Burnett, however, in his *last* Report upon the Disease of the African Station, blots out the commencement of the fever as reported by Dr. Barry, on the 13th December, 1822, and its gradual spread through the different districts of Freetown during the months of December and January, and dates its commencement in the month of February. He says, p. 35, "During *February*, 1823, fever of an epidemic character *began* to manifest itself in Sierra Leone, and rapidly extended to crews of vessels in the harbour." So far from the fever commencing in the month of February, it had already prevailed during a period of six or seven weeks; the spread by contagion, however, would have been too evident if he had given the original dates! The *Bann* had arrived at Sierra Leone from England on the 11th of January, 1823, and remained at *anchor for seventy-four days*, the crew all this time continuing in good health; on the 25th and 26th March the master and three seamen were attacked with fever, the captain in consequence got under weigh on the 27th, but too late. Disease had got into the ship, and the sick list rapidly increased, the disease, beginning forward in the ship, came gradually to the after part, till nearly all the officers and men were attacked.

The *Bann* sailed under orders for St. Thomas, but from the rapid increase of sick and the great mortality, it was deemed advisable to proceed direct to Ascension, having lost during the voyage, and after her arrival at this island, thirty-four of her crew. On her arrival tents were pitched on shore, the

sick, forty-five in number, were landed, and an attempt at *what was called quarantine* established between them and the garrison, which, as might have been expected (from the sale of the effects of the deceased officers on shore, as mentioned by Mr. Ferguson), proved of no avail. In eighteen days after the arrival of the *Bann* at Ascension the disease commenced amongst the population on shore, a boy, the son of a sergeant, having been the first attacked; and although the fever in the *Bann* had nearly ceased, it went on daily attacking some of the garrison, twenty-eight of the marines having been taken ill, of which number fifteen died.

Sir William Burnett states his *inability* to account with *certainty* for the *origin* of the fever, either in the colony or in the *Bann*, but says that "it was *in the first instance* merely the common endemic of the country, brought on by hard labour and exposure to the sun, not possessing, under these circumstances, any contagious properties, *and continued to be so until after the middle of February;* that it subsequently, by the state of the *weather* preventing *ventilation*, and from a great number of the sick being confined in a small place, became contagious, and that though it was impossible to trace the fever in question *directly from the Bann* to any individual of the garrison of Ascension, yet there is *just reason to believe that the disease was introduced into the island by that ship*."

The proofs of contagion in the present instance *were* so overwhelming, that Sir W. Burnett was compelled most reluctantly to abandon, for a time at least, his favorite theory, and the silly and false reasoning which he adduces in support of the disease having *become* contagious is quite unworthy of comment. Sir W. Burnett has never been at a loss for causes either as originally producing this black-vomit fever, or for its being transposed or metamorphosed from the bilious remittent: in the *Bann*, he says, it was produced from common causes, and a crowded state of the sick—at Ascension it originated from a puddle of dirty water, or mud pit, which never

had any bad effects in the production of disease until the arrival of the *Bann.* The hold of a ship being foul is one of his common causes. Taking on board a supply of green fire-wood, in his opinion, has often produced the disease. Emanations from the interior of the ship, by the decomposition of wood, as in the case of the *Sybille* frigate. Irregularities on shore he gives as the cause of its origin in the *Eclair* at Sierra Leone, and abuse of spirituous liquors afterwards at the island of Boà Vista.

Sir William Burnett has acknowledged the existence of contagion in the *Bann* by his statement as to the fever having been introduced into the island of Ascension by that ship; and there can be nothing more convincing of the fact, than the account, p. 76, of the importation of the disease in the course of the same year as described (p. 77), into the town of Bathurst on the Gambia, by H.M. brig *Curlew,* and afterwards into Goree by the terror-stricken inhabitants who had fled from Bathurst. We have had accounts of the importation of this dreadful fever into various places, since its first introduction into the island of Grenada in 1793, then into the West India islands, and different ports in North America, Cadiz, and Gibraltar, but never more decidedly and circumstantially than in the year 1823, by the *Bann,* into the island of Ascension, as stated by Sir William Burnett himself; by the *Curlew* into Bathurst and Goree in the same year; and into Boa Vista, one of the Cape de Verd islands, in 1845, by her Majesty's steamer *Eclair.* And it is worthy of remark, that it was the first and only instance of the disease having existed at any of the four last-mentioned places before the periods mentioned.

Sir W. Burnett has stated that the fever in the *Bann* was, in the first instance, the common remittent (the endemic of the country), at the same time states his inability to account with certainty for its origin. This is a most extraordinary declaration; for if it really had been the remittent fever, it is the first instance of any medical man being unable to

account for the existence of this fever on the coast of Africa. The fact is, it never was that disease. The crew had not been on shore, nor in any way exposed to the influence of the causes producing remittent fever.

Sir W. Burnett himself, in his original Report upon the *Bann,* so long ago as the year 1824, gives, upon the authority of Dr. Barry (army medical officer at Sierra Leone), the very *first case* of this black-vomit fever, which excited attention, viz. on the 13th of December, 1822; and from being unknown to the medicals of both navy and army at that station, was called a suspicious case, the individual, the subject of it, having died, after a very short illness, with the *marked symptom of black vomit;* and it was from this symptom, and the disease spreading gradually through the different districts of the town, and amongst the crews of the merchant vessels, that the disease was recognised. He is so particular as to notice, also, the first person attacked by it on board the merchant vessels, viz. the mate of the *Lively,* a timber loaded ship, in February. It is evident, from the sudden attack of the crew of the *Bann,* and its rapid spread amongst them, as well as in her tender, the *San Rafael,* that the disease was the contagious Bulam Fever from the very commencement; and that the *remittent fever, hard labour, exposure to the sun, the state of the weather preventing ventilation, and a crowded state of the sick,* which Sir William Burnett, in his original Report upon the *Bann,* gives as the cause of the disease, had nothing to do with its origin. The sick could not have been crowded on board, when the ship sailed from Sierra Leone, there having been only three patients on the sick list at that time; and as to want of ventilation, if this had been the case when at anchor, it must have been immediately removed upon getting under weigh.

And, with reference to Sir William Burnett's causes for the production of this fever, mentioned in his Report in 1824, he gives a very different version of it in the joint Report upon African Fever, published in 1847. He says, p. 45, "The

Bann contracted the fearful scourge, which swept off nearly one third of her crew in little more than two months, at Sierra Leone, *from a protracted exposure to the influence of that pestilential locality.*" This is a new and a solitary cause; and if this pestilential locality had produced any disease, it would have been his favorite Remittent. In the year 1847, however, he has forgotten, or set apart, all the causes which he gave in 1824, and produces the fearful scourge at once, without any other assistance than the *pestilential locality,* which he fancied was in existence at Sierra Leone, although the crew remained there seventy-four days without a case of fever. By Mr. Ferguson's history of the black-vomit fever, p. 73, it appears that there had been no pestilential cause in existence at Sierra between the years 1823 and 1829, when the crew of the *Eden* contracted the same disease, and communicated it to the settlers at Fernando Po, in the same way as the *Bann* communicated it to the garrison at the island of Ascension. The reporters, however, hesitate at nothing, when their object is to keep up the delusion in support of their mistaken theory and destructive doctrine, relative to the Remitting Fever being converted into the fatal Vomito-Negro.

It has well been said, "If fevers produced by marsh miasmata could acquire a contagious power, and thereby produce other fevers in addition to those which their original cause will doubtless continue to produce without end, such enormous addition to the widely-extended and powerful mischief of marsh miasmata would long since, in the ordinary course of things, have exterminated the human race." Fortunately, however, it is not so; the laws of disease are not so flexible as the reporters conceive. The Bulam, or vomito-negro fever and the remittent (or marsh fever of all countries) are two distinct diseases; they do not run from one into the other, but retain their original identity.

And if, as Sir William Burnett supposes, the remittent fever could be converted into a contagious disease, it would

then become a contagious remittent, a new and specific disease; and the communication of the virus of this disease from the sick to the healthy would, according to the laws of nature, as uniformly produce the same specific disease as inoculation produces smallpox. But the idea of one disease being thus changed into another is too ridiculous! The Bulam is a continued fever without remissions, excepting the very deceitful one towards the close of fatal cases, when gangrene of the villous coat of the stomach takes place; when, from the cessation of all pain and fever, the inexperienced medical man pronounces his patient convalescent. In a very few hours, however, he is convinced of his error.

With reference to this fanciful change of the remittent fever into the Bulam, or vomito, in a letter which I received from a very distinguished physician at Paris, who had great experience in the West Indies, he says—

"Je ne vous cacherai point que j'ai éprouvé quelque surprise en ne voyant pas les médecins de vos batimens de guerre mieux informés de la nature et de l'histoire des maladies tropicals. Cela est tout au plus permis aux notres, qui n'ont autant d'occasion de les voir.

"Il est presque inutile de vous dire, que je suis en dissentiment complet avec la doctrine de votre envoyé, que croit à la transformation de la fièvre rémittente bilieuse, en fièvre jaune; J'aimerais autant croire que les hannetons se changent en elephants."

And I may here notice another inconsistency of the compilers of the Report, in asserting that the yellow, or vomito-negro fever is only an aggravated type, or highly concentrated degree, of the remittent, or marsh fever. Sir W. Burnett, p. 12, on Mediterranean Fever (which he considers to be the yellow fever), says—"During the prevalence of an epidemic of this kind, slighter cases will undoubtedly occur; indeed, some of them so mild as to require little medical treatment beyond rest, abstinence, and a few doses of purgative

medicine." *And those mild cases are considered to be an highly concentrated degree of the bilious remittent ! !*

The object of the Lords of the Admiralty in calling upon Sir W. Burnett and Dr. Bryson for their Report, was no doubt with the view of obtaining for their medical officers employed on the coast of Africa information as to the nature and origin of the diseases on that station, and as to the precautionary measures to be taken for the purpose of averting or diminishing fever. They ought, therefore, in their very short history of the fever in the *Bann*, to have been most particular in giving a true and faithful account of all occurrences relative to the date of its commencement and origin. They have, however, signally failed in this duty—so far from having given a faithful and impartial history of the disease from its commencement, they have altered dates, suppressed facts, and made most unfounded assertions relative to the origin and cause of fever at Sierra Leone, and on board the *Bann* in the years 1822-3; and, so far from giving information and advice to young naval surgeons, they lead them astray, and keep them in ignorance of the real nature of the fever, so much so, that every naval surgeon who has served on the coast of Africa, is under the impression that he has seen and treated the yellow fever, although it is clear, from the evidence of Mr. Ferguson, confirmed by Dr. Aitken, the one having been sixteen and the other eighteen years resident at Sierra Leone, that the black-vomit fever had not appeared there between the years 1823 and 1829, nor between this last year and 1837.

By the following *incomprehensible* extract, p. 249, (Report on Diseases of the African Station), we may judge of the confused ideas of the authors as to the nature of vomito-negro fever, and as to the probability of their being able to give any information upon the subject to the surgeons employed on the coast.

"It has not been considered necessary to adhere strictly throughout this Report to the various names which have been *applied to remittent fever* in the nosological returns; partly

from the conviction that to do so, would only lead to misapprehension and confusion; partly because it was in many instances altogether impossible to reconcile the classification there adopted, with the symptoms recorded in the cases which were contained in the journals for the corresponding periods; their number was also an objection; moreover names had been applied which were totally devoid of any definite or distinct meaning, such for instance, as *jungle, mixed,* and *coast fever.* The bilious remittent of one person was found to be the climatorial of another; the *endemic* of a third was the *typhus icterodes* of a fourth; the adjectives *ardent, yellow, congestive, inflammatory,* had all been used in describing the same disease. *A more simple phraseology was, therefore, unless under peculiar circumstances, deemed advisable.* The character of these fevers, in fact, is such that the *synochal* of one day may become a *remittent* on the next, and probably ere long terminate in an *intermittent;* the *ephemeral of little force* may suddenly become one of *high vascular action;* or at the same time, but in a different subject, pass rapidly through the stage of excitement, and at once enter upon *the typhoid;* while that which invades with great intensity of action, may frequently be of *ephemeral existence* only. It is, therefore, obvious that it is not until the fever approaches its termination that it can be brought under any one of the previous heads; consequently, in a practical point of view such visionary distinctions are of little or no importance.

"The fevers of Africa, strictly speaking, are only divisible into two kinds; namely, into the *remittent* and *intermittent.* The former, however, may be subdivided into the *endemic, epidemic,* and *contagious;* but as either of the former, as in the *Bann, may be converted* into the latter *by improper ventilation, the depressing passions, and physical prostration,* and as it—*the contagious*—does not originate or even exist for any length of time except under these conditions, the subdivision is again reduced to two heads—the *endemic* and *epidemic, both of which are remittent,* and both generally, according to

their persistence, attended with more or less *yellowness of the skin*, and occasionally, in *the more severe cases, with black vomit.* It becomes a question *if the latter be not an aggravated type of the former*, in consequence of the more general prevalence of a common exciting cause. Still, from its uncertain modes of *invasion* at distant periods, from its apparent restriction to certain *bounds, and from its greater severity*, the appellative *distinction*, at least until the subject is better understood, remains strictly warrantable."

This is certainly a fancy sketch, and not very intelligible; but I believe intended as an apology for changing the name of contagious black-vomit fevers into that of *the epidemic.*

Sir William Burnett, above thirty years ago, published a volume upon Mediterranean Fever, the Bilious Remittent of the islands of Malta and Minorca, and from the skin of many of the patients becoming yellow, he took it for granted that it was the same disease as the Yellow, or Vomito-Negro Fever, at times so fatal on the African coast and in the West Indies.

This fever, the subject of Sir William Burnett's publication, is endemic at a certain season of the year in different parts of Europe, in the neighbourhood of marshes and moist uncultivated grounds; and in tropical climates it prevails in such localities at all seasons, known as the marsh, or remittent fever of the West Indies, the malaria fever of the Levant, and the jungle fever of the East Indies; it is, in fact, a higher grade of the well-known Walcheren.

This fever is not contagious. It is a fever of considerable duration, extending from three to thirteen or fifteen days, and has distinct remissions and exacerbations. Any person who has suffered one attack is liable to relapses and repeated attacks of it; and it very often terminates in ague, followed by derangement of the liver and other viscera. *Bloodletting*

is a favorite remedy in this fever, and its use is attended with success.

The Bulam, or vomito-negro fever, which Sir William Burnett fancied he was writing upon, is a very different disease. It is in no way connected with malaria, marshy, or unhealthy situations. It is a native of Western Africa (as the *pestis bubonica* is of Egypt and Syria), and has not been known to prevail, even in that country, excepting at distant and uncertain periods, p. 73.

It is highly infectious, and consequently capable of being communicated by the crew of a ship under its influence to a population on shore, or to the crew of another ship, more particularly in warm latitudes, or in countries enjoying a certain degree of summer heat, its infectious powers being increased by heat, and *totally destroyed by cold.* Patients, after an attack of this fever, *never* suffer from ague, or affections of the liver, as they do after an attack of the remittent fever (they may, no doubt, in marshy situations, but not as a sequel to this disease). It is a disease of comparatively short duration, terminating, in fatal cases, from the third to the fifth or sixth day, with hiccough, non-secretion of urine, and black vomit: this last symptom rarely or never appearing in the remittent fever. It has also the singular and peculiar character, now universally acknowledged, viz. that, like smallpox, it *attacks the human frame but once.* I may add, that this vomito-negro contagious fever is unknown in the East Indies, in Egypt, or in Syria, although in the regular season the remittent fever is sufficiently prevalent in those countries.

Bloodletting, so successful in the cure of the remittent fever, is in this last disease inadmissible.

Sir William Burnett, in writing upon his Mediterranean Fever, takes up his pen, and coolly informs the public of his intention to remove the obscurity in which the fever of Gibraltar had hitherto been enveloped. The *attempt,* he acknowledges, had been attended with *many insurmountable*

difficulties, which must have been expected, when taking into consideration, that he had not seen the disease. The fact is, he has confounded three different fevers, mentioned at p. 3, viz. the Bulam, the Remittent, and Bilious Continued Fevers. In his preface, p. 10, he says—"The medical officers of Gibraltar have *constantly declared the fever of Carthagena to be perfectly similar with that which has committed such devastations amongst themselves; in this opinion,*" he says, "*I coincide, and therefore, in my subsequent remarks, shall consider them in the same point of view.* The pressing necessity will be seen of resorting to measures very different from the establishment of a quarantine, to prevent this fever from again committing such ravages in that garrison." This (to use one of his own expressions) is a gratuitous assumption, and not founded in fact; and as a proof to the contrary, I must refer my readers, first, to my instructions to Mr. Vance, p. 35, and next to the following extract of my letter to Sir Richard Keates, published by Sir W. Burnett himself, in which I point out not only two distinct diseases, but two methods of cure, mentioning bloodletting as beneficial in the one, and detrimental in the other.

Extract of Letter to Sir Richard Keates.

"In my opinion the fever, which prevails on board the transports from Carthagena, is the contagious fever of the West Indies, known by the name of the Bulam Fever, from its having been imported from that settlement to the island of Grenada, in the year 1793. It is the same disease which prevailed in Spain in the years 1800 and 1803, and at Gibraltar in 1804.

"The disease differs very materially from the bilious or yellow fever, which is common in the Mediterranean during the summer months; *this last is not contagious;* the pulse is often slower than natural. It is generally attended with inflammation of the liver; *is relieved by bleeding,* and seldom runs its course before eight or nine days.

"*The first is contagious;* the pulse is very quick; *it does not bear bleeding;* generally terminates before the fifth day, and is very often attended with the most fatal symptom of black vomiting.

(Signed) "W. PYM."

So that this extract from his own work contradicts his very first assertion. He attempts to clear up the mystery, not only of the fever of 1810, but of 1804. Of this last year he begins by the report made to him by Mr. Griffiths, which is in direct opposition to what he wishes to establish; for Mr. Griffiths says, "the disease was announced to be contagious, and the depletory system was entirely laid aside."

With reference to the two diseases, the distinguishing symptoms in the remittent are well described by the surgeons of the fleet in their reports to Sir William Burnett, viz. the *longer duration* of the disease, the *liability to relapse,* to *attacks of intermittent,* and to *liver affections, dropsical swellings,* &c., as *sequelæ* to this disease, and without any mention of the *black-vomit* symptom so frequent in the Bulam fever, many patients in Sir William Burnett's fever not reporting themselves sick until the third or fourth day of their illness, a period which, in most cases of the Bulam fever, carries off the patient, or puts a termination to the disease, and is well described in Mr. Griffiths's Report. He says:

"Those who did not apply till the *second or third day from the attack,* exhibited a yellow suffused state of the eyes, which soon spread to every other part of the body. If the disease was not followed by a *remission* on the *seventh or ninth day,* it put on the greatest malignity; and in two cases that terminated fatally, they died on the ninth. Eight others underwent the violent form of the disease; *were deeply tinged with bilious suffusion;* were all delirious; had a favorable *crisis* on the NINTH, ELEVENTH, and FOURTEENTH DAYS, and finally recovered after a very tedious convalescence."

Mr. Rudland reports that for the first two or three days, "the *remissions were generally very distinct;* the pulse, during the paroxysm, from 115 to 135; the heat of skin intense, with thirst and restlessness; white tongue, and red or watery eyes.

"Except in two patients, who recovered, *no particular irritability of stomach could be discovered;* vomiting very seldom took place, the stomach in general retaining everything till within a few hours of death."

The Assistant-surgeon of the *Invincible* says, "that the remissions in some were strongly marked."

Mr. Rae, in his Report to Dr. Burnett, says, "*I am certain that almost all the cases which occurred, on shore or on board, were of the remitting or intermitting kind.* I did not hear *of any cases of the three-day fever, excepting two;* one the master of a transport, the other a soldier."

Sir W. Burnett, in his Report to the Admiral, says: "The men in hospital are in different stages of convalescence, with great disposition to relapse, particularly those belonging to the *Invincible;*" and at page 159, "the patients in the *Téméraire* were constantly relapsing, several as frequently as three times." And as to the seat of the disease, the stomach in the Bulam fever is universally the part affected; in the remittent, the brain and liver. Sir W. Burnett, at page 11, says, "I have before observed that during the early part of summer, the *brain* is the organ most violently attacked."

Mr. Wardlaw, in his Report, says: "The liver and brain seemed to be the only viscera affected."

Mr. Delaney says: "Universally the brain appeared to be the primary and principal seat of the disease."

Mr. Morgan, surgeon to the *Temeraire,* in his Report to Sir William Burnett, settles the question; he says, "*this fever has not the least resemblance to the yellow fever which he had witnessed in the West Indies.*"

And Dr. M'Arthur, upon West India Fever, page 237, says: "I have never noticed a remission in the whole course of the fever."

Sir William Burnett himself, at page 12, says: "As the earlier yellow suffusion appears, so in proportion is commonly the danger of the patient, not only as to his present recovery, but also as to the ultimate consequence of the fever, as in almost every instance, it portends a protracted convalescence, and not unfrequently is followed by a *diseased state of the liver, dropsical swellings,* or *irregular attacks of intermittent fever.*" And at page 249, he says: "In those who do not immediately die, the termination in *ascites, anasarca, hepatitis, phthisis,* and *intermittent* fever, occurs in each;" and in his Report to the Commander-in-Chief—"The total number of patients from the *Temeraire* is 133, and from the *Invincible* 107. The others are in different stages of convalescence, with great *disposition to relapse;* particularly the *Invincible's* men, who are extremely extenuated; and I fear many of them will be a considerable time before they recover their strength."

These extracts mark the difference of the two diseases, by the longer duration of the remitting fever, its being liable to repeated relapses, by its remissions and exacerbations, and by its sequelæ, ague, liver and dropsical affections, and *without black vomiting,* the well-marked symptom in the Bulam fever, and without any liability in this last, as to the sequelæ mentioned.

Sir William Burnett seems to labour under a species of monomaniacal non-contagious delusion with reference to the yellow or rather the remittent fever; as, in his joint Report with Dr. Bryson, in giving an account of the disease on board the *Sybille,* on the coast of Africa, in the year 1829, he says: "The disease was evidently yellow fever in the greatest degree of intensity; with two exceptions, it was of the *continued*

kind, the stage of excitement short; in the worst cases it terminated fatally between the third and sixth day, most frequently on the fifth. Death was preceded in a great number of cases by *black vomit,* often accompanied by a dingy or livid hue of the countenance. Yellowness of the eyes and skin were very common before death.

This is a very accurate description of the disease as it appeared at Gibraltar, but very different from that given by Sir William Burnett in his treatise upon Mediterranean Fever.

And, to show that there are none of the sequelæ mentioned by Sir William Burnett in his fever, he states, with reference to the *Sybille* frigate just mentioned, that this ship (in consequence of the fever prevailing on board) having been cruising a long way out at sea, the surgeon reported the *sudden cessation* of the disease on a particular day (the 28th of August), when *forty men* were on the sick list, and that in fifteen days after; they arrived at St. Helena *without a man sick,* where, after a short quarantine, they were admitted to pratique, p. 53. What becomes of Sir W. Burnett's ascites, anasarca, hepatitis, phthisis, and intermittent fever, mentioned by him (p. 94) as sequelæ in what he supposes to be the Bulam fever?

It is evident, also, that the stomach is the part chiefly affected in the Bulam fever, as, from the frequent examinations after death of those who die of this disease, that they have been destroyed in consequence of irreparable injury to this viscus. Dr. Bancroft says, "In some cases, almost the whole inner surface of the stomach was inflamed, very often portions of the villous coat were abraded, and not unfrequently observed floating among its contents."

Dr. Rush says, the stomach was inflamed both on its outside and inside, its villous coat covered with fuzzy and

slimy matter. This peculiarity in the inner coat of the stomach was universal. Dr. M'Arthur, upon yellow fever, says, p. 239, "In ten cases of a peculiarly aggravated degree of fever, where much delirium had been present, I opened the head; in five cases, the brain did not exhibit any marked appearance of disease: the stomach, on the contrary, in above a hundred cases which he inspected, showed the following appearances:—Irregular spots, patches and streaks of the internal surface in a state of inflammation, gangrene, or sphacelus; sometimes large portions of the villous coat destroyed."

The following is an extract from a report of several dissections by Drs. Physick and Cathrall, during the epidemic of 1793 at Philadelphia:

"1. The brain, in all its parts, have been found in a natural condition.

"2. The viscera of the thorax are perfectly sound.

"3. The stomach, and beginning of the duodenum, are the parts that appear most diseased. In two persons, who died on the fifth day, the villous membrane of the stomach was found highly inflamed; the inflammation was exactly similar to that induced in the stomach by acrid poisons."

The dissection at Cadiz by the Spanish physicians confirm the same. Monsieur Berthe says, "En examinent l'estomac, on y decouvrait les traces d'une phlogose récente qui avait été suivie d'erosion de la membrane interne de ce viscère: il était même quelquefois gangrené."

The same has been universally observed in the West Indies, and at Gibraltar, every time that disease prevailed there.

I shall now enter upon the subject of BLOODLETTING, which, I agree with Sir W. Burnett, is a sovereign remedy in the *early stages* of the *bilious remittent,* and the same in the *bilious continued,* and even when the disease has been of some days' duration, a remedy which, in this *last disease,* had been used, for a great number of years, with success, in Gibraltar; and by the medical officers in the army of Sicily, under the superintendence of Sir William Franklin, but it is a practice which I must pronounce not only not beneficial, but absolutely prejudicial, and inadmissible, in every stage of the Bulam fever. Sir William Burnett, in the preface to his work upon Mediterranean Fever, p. 10, says, "It may appear that the author has recommended too liberal evacuations! To this he has to reply, that *a success which has never been exceeded* in the treatment of any epidemic, *fully warrants him* in so doing."

P. 22. "In one instance I ordered blood to be taken from the temporal artery, to the amount of *ninety ounces* in the course of six hours."

P. 24-5. "In many instances where the patient has not come *immediately* under my care when taken ill; or where the disease had been obstinate, and the symptoms violent, blood has been often taken to the amount of 130 or 140 ounces, and even as far as 200, with the most marked advantage."

"In one case of a strong and vigorous man I was obliged to carry bleeding further than I had ever done before. In the course of eight days he lost upwards of fifteen pounds of blood from the arm and temporal artery."

This is certainly a bold, and might have been a very successful practice in the bilious continued or remitting fever. But by the following extracts from different authors as to the success of bloodletting in the Vomito-Negro Fever, it must appear evident that Sir W. Burnett has published upon a disease which he had not seen, and which he did not know the nature of, and if undertaken with the view of recommending bloodletting

and doing away with quarantine regulations in the Bulam fever, there never was a book had a more mischievous tendency.

Before, however, inserting the extracts from different authors relative to bloodletting, I shall notice the following extract from his joint work with Dr. Bryson upon the Diseases of the African Station, from which it would appear that Sir William had acquired some new light upon the subject, although he still holds on by his original doctrine of the remittent and Bulam fevers being the same disease. At page 77 he says, "It has been strongly urged upon the younger branches of the profession, for the last twenty years at least, that bleeding in tropical fever is a *sine quâ non,* and under peculiar circumstances, such as supposed inflammation and congestion, was enjoined to be practised *with a bold hand,* until the violence of the disease was broken. Happily," he says, "those doctrines, *groundless in theory and empirical in practice,* are rapidly giving place to others more consistent with *common sense* and the rules of sober reasoning. *The majority of medical officers of the present day, find that the abstraction of blood in large quantities is productive of a dangerous degree of debility in the typhoid stage of the disease;* while it has been observed that the blood drawn is frequently *dark-coloured, and deficient in coagulable properties,* indicating directly the reverse of an inflammatory diathesis."

At page 234, he says, "The attempt to cut short, or to annul an attack of fever in its earliest stage by violent means, such as a powerful emetic, *or a large abstraction of blood, is less frequently made;* experience having proved *the general inutility of either of these plans, as well as the danger attending the latter.*"

And at page 120, the abstracting large quantities of blood having been dwelt on, it is proper to introduce the following remark: "The blood when flowing from the arm

was very dark-coloured, and when allowed to stand was loose in its texture neither showing a buffy coat nor separating into serum and crassamentum."

These extracts from what I must call his own report upon the diseases of the African coast, with reference to bloodletting, prove not only a change in his opinion but the existence of two distinct diseases, viz. the remittent, in which bloodletting is beneficial, and the Bulam, or vomito-negro fever, in which it is destruction.

In every part of the world where this vomito-negro fever has made its appearance, the symptoms at its commencement seemed to indicate the necessity of bloodletting.

Dr. Chisholm tried it on the first appearance of the disease at Grenada, but, instructed by repeated examples of its hurtful effects, he very soon laid it aside; for although the pains seemed to undergo a temporary mitigation, yet the consequence at the expiration of a few hours was *always fatal.*

Dr. Robertson, of Barbadoes, found bleeding highly injurious in the treatment of this fever; he says, "I have known many who have died that have been bled, and few, indeed, that have recovered when venesection has been performed in this island."

The physicians at Cadiz, when the disease first made its appearance there, had recourse to their general remedy in all diseases—venesection; but, as in other places, they soon felt the bad effects of it, and gave it up.

Don Tadeo de Lafuente, in mentioning this disease, says, "Parece haberse adoptado en Cadiz, muy à los principiis *el Metodo Antiflogistico,* pero tambien parece que los *malos succesos de las sangrias* lo hicieron abondonar immediamente y con efecto."

Dr. Wright, in his Report to the Medical Board, says,

"The use of the lancet we judged unnecessary and dangerous in the extreme.'

Dr. Clark, of Dominica, says, "That from the remarkable flushing of the face, great inflammation of the eyes, and full pulse in the first stage of this disease, young practitioners might be induced to use the lancet freely; and the French surgeons, whose chief remedy in almost all disorders in these islands is venesection, very readily fell into this error. *There was not a single instance of an emigrant recovering who had been bled.*"

During the epidemic of 1814, in Gibraltar, venesection was tried by some of the medical officers; the success of which is described in the following extract of a letter from Mr. Fraser, Deputy-Inspector of Hospitals:

"Venesection, so *beneficial* in the *bilious remittent*, was generally disused; and when any of the troops happened to have been blooded before they were sent to the fever hospitals, the medical officers in charge, made official complaints that they had no chance of saving their patients, and this practice was at last peremptorily interdicted."

Dr. Gillespie, Physician to the Fleet, says, page 71: "Bleeding, which appeared to be indicated from the violent inflammatory symptoms, was practised in the beginning of the epidemic on several very robust young men, but with very bad success. The effect of this evacuation in diminishing the strength of the patient, and accelerating the second stage of the disease, was remarkable!—the blood taken away was loose in its texture, the crassamentum dark-coloured, the serum tawny, and in considerable quantity. *Not one of those bled recovered,* although they were the most robust among five hundred men."

The same author, page 133, says: "Some of the most rapidly fatal cases which occurred in the beginning of the

disease were those in which plentiful venesections had been used; and later, in the course of the epidemic, the practice was abandoned."

Upon examining eleven cases given by Sir William Burnett as having been treated by himself, I find that—

2	were bled	on the	2d day
3	,,	,,	3d
4	,,	,,	4th
1	,,	,,	5th
1	,,	,,	7th and 15th.

Which practice, I will allow, might prove very successful in the bilious continued inflammatory fever, or in the remittent; but quite the contrary in the Bulam. Indeed, the patient's fate, in this last disease, is generally *decided by the third day*.

From the perusal of Sir W. Burnett's book upon the Mediterranean Fever it is evident that he had not the Bulam fever to contend with; and this is confirmed by the surgeons of the fleet, whose reports prove clearly that the diseases treated by them were the remittent and bilious continued fevers, not only from the length of their duration and liability to relapse, but from the frequent occurrence of diseased viscera, and from patients being relieved by bloodletting: in all which particulars they differ from the Bulam fever; after which we have *no liver affections, no dropsical swellings, no relapses, no intermittents*.

At p. 26 I inserted a monthly return of sick at Gibraltar, for the month of January, 1805, to show the small number of cases of diseased viscera only a month after the fever had ceased in 1804; and I now insert the returns of the same garrison for December 1813-14, the month after the epidemics ceased.

Returns of the Sick in the Army at Gibraltar.

20th December, 1813.

DISEASES.																						
	Fevers.																					
Strength of the Army.	Simple Continued.	Typhus.	Intermittent.	Bilious Remittent.	Pneumonia.	Catarrh.	Phthisis Pulmonalis.	Rheumatism.	Dysentery.	Venereal.	Ophthalmia.	Asthma.	Scurvy.	Dropsy.	Ulcers.	Wounds.	Punished.	Casualties.	Other Chronic Complaints.	Total.	Convalescents.
3600	22	—	3	1	1	1	2	3	7	6	19	5	1	1	11	11	4	15	1	114	38

(Signed) J. D. A. GILPIN, *Deputy Inspector.*

20th December, 1814.

DISEASES.																												
	Fevers.																											
Strength of the Army.	Continuæ.	Typhoides.	Intermittentes.	Bil. Remittentes.	Hepatitis.	Catarrhus.	Pneumonia.	Phthisis Pulmonalis.	Rheumatismus.	Diarrhœa.	Dysenteria.	Syphilis.	Ophthalmia.	Icterus.	Epilepsia.	Ascites.	Scorbutus.	Abscessus.	Cynanche Tonsillaris.	Ulcera.	Fractura.	Vulnera.	Puniti.	Casualties.	Alii Morbi Chronici.	Total.	Convalescents.
4632	3	—	3	8	1	10	7	3	10	7	10	3	16	3	1	1	1	1	1	13	1	1	2	6	4	116	24

(Signed) J. M'MULLIN, *Physician to the Forces.*

Which returns, immediately upon the cessation of two severe epidemics, during which many hundred soldiers had been attacked, show, most decidedly, the non-existence of visceral disease after the Bulam fever, and is as good a proof as could be found of the two distinct diseases, as I have described them in my instructions to Mr. Vance, p. 35.

And, to show how speedy is the termination of the Bulam fever, and how rapid the recovery, I insert a list of 105 patients under my charge, belonging to the 13th regiment, during the epidemic of 1804:—

1	discharged convalescent on the 2d day after being attacked			nearly fit for duty.
2	,,	,,	4th	
4	,,	,,	5th	
5	,,	,,	6th	
10	,,	,,	7th	
12	,,	,,	9th	
11	,,	,,	10th	
11	,,	,,	11th	
6	,,	,,	12th	
7	,,	,,	13th	
6	,,	,,	14th	
2	,,	,,	15th	
1	,,	,,	18th	
1	,,	,,	26th	
89				

1	died on	the	2d day
8	,,	,,	3d
2	,,	,,	4th
1	,,	,,	5th
1	,,	,,	6th
1	,,	,,	7th
1	,,	,,	9th
1	,,	,,	11th
16			

H.M.S. KENT.

From H. M. S. *Kent* having been particularly mentioned by Sir W. Burnett in his Report upon the *Bann*, as the only instance which had come to his knowledge of fever having broken out in a ship after having been some time at sea, without the most remote suspicion of contagion having been introduced before she left the harbour, and from a most respectable medical journal having particularly noticed the circumstance, I am induced to make some observations upon it.

In the second vol. p. 380, 'Med.-Chirurg. Quarterly Review,' it is said—"If, in the instance of yellow fever, it is still denied that a marsh yellow fever may assume contagious properties, we are unavoidably driven to the opinion that, on board the *Kent*, the *Scout*, the *Bann*, and the *Eclair*, two diseases must have been prevalent at the same time. But this hypothesis seems to us in the highest degree improbable. How and when did the *Kent* or the *Scout* become infected with the contagious fever? Not from Port Mahon, nor Port Royal, for it did not exist in those places. In the case of the *Bann* this was attempted, but certainly without success. It is incumbent on the supporters of the hypothesis to demonstrate the channel of introduction!"

"It was first stated, however, with reference to the generation of the efficient cause of contagion (p. 377), that the case of the *Kent* man-of-war seemed a tolerably certain one, as it appeared to have originated from the unhealthy anchorage selected at Port Mahon, and to have acquired contagious properties during the voyage." This, no doubt, is taken from the short statement by Sir William Burnett, relative to this ship, in his official Report upon the *Bann*, which is, however, far from correct; and, as I happen to have some knowledge of the history of this ship, I must in the first place state that, although the fever which prevailed on board,

was without doubt an infectious one, it appears to me most certain that it was not the Bulam or vomito-negro fever. It so happened that I was at Gibraltar when the *Kent* anchored in the bay, on the 5th of August, 1809. I went alongside with the captain of the port, and, after conversing with the surgeon, he handed over the side a paper, of which the following is a copy:—

"*Report of Sick List on board H. M. S. Kent.*

Fever.	Convalescent.	Consumption.	Accidents.
1	136	2	12

"With respect to the nature of the late prevailing disease on board of this ship, it was attended with marked symptoms of the yellow fever, and appeared off the coast of Barbary on the 6th of July. Our men are all now in a promising state, and the infection appears to have been stopped. The last case, which is the one I now consider as fever, appeared on the 29th of last month. We have had no recent cases since then, and we were three or four days without a new case before the 29th.

"RICHARD WOODTHORPE, Surgeon.

"Gibraltar Bay, August 5, 1809."

From which it appears that the last case of fever occurred on the 29th of July, the disease having continued during a period of twenty-three days, or rather twenty days only, for there was no case for three or four days before the 29th. The surgeon, in reply to my inquiries as to the origin of the disease, stated to me verbally that in his opinion it was in consequence of having *received on board some French prisoners, with their bedding, when cruising off Toulon.* From the *history* of the disease given by the surgeon, from it having been *communicated* to the crews of the transports by the men-of-war's men who had been removed into them, and from the *fatal black-vomit* symptom having been stated to have occurred in some instances, I agreed with him in opinion, that it was as he stated it to be, the contagious yellow

or black-vomit fever, and reported it as such to the Governor of the garrison, and to the Army Medical Board in England.

Having, however, lately had an opportunity of examining the detailed cases of some of the patients, together with the official report and remarks upon them by the surgeon of the ship, I find that its symptoms did not in any way correspond with those of the vomito-negro fever, and that it was in fact a very different disease from the fever which is mentioned by Sir William Burnett as resembling that which prevailed on board the *Bann*. It appeared on the 6th of July, at a much earlier date than the Bulam fever has ever been known to exist in the Mediterranean; and its outbreak and sudden spread was much more rapid than that of the Bulam when it appears on board ship—170 cases having occurred in the course of three days. The symptoms also in the fever on board the *Kent* were very different. In the Bulam fever the stomach is the organ principally affected, its villous coat being inflamed, which in fatal cases terminates in gangrene. The liver, on the contrary, in the fever on board the *Kent*, seems to have been the organ chiefly and primarily affected. The surgeon in his report says, after the usual commencement of the fever symptoms—"As the disease advances (I give the symptoms nearly in the order he has placed them), continued hiccough and vomiting—acute pain in the epigastrium and hypochondria—general diffused yellowness of the eyes; and the skin, of a deep orange tint—syncope in the erect posture—frequent hemorrhage from the nose—tongue black and parched—retention of urine occurred, which was relieved by the catheter; delirium was observed in two instances.

Relapses generally occurred after they had been a few days convalescent.

Ophthalmia was a very frequent occurrence.

Increased Action of the Kidneys supervened in many cases with a frequent desire for voiding the urine.

Sore Throat.—This was general, and occurred in most cases in the first instance, sometimes on the second or third day. Desquamation of the cuticle also occurred; in one instance it came off both feet, resembling a pair of socks.

Vomiting.—This was bilious and yellow in the first instance, sometimes green. In three instances *in the convalescent state* the matter vomited was observed to be of a dark-brown colour; *their expression* (to use his own words) *was black;* although I have to regret that I could not ascertain the fact.

Exacerbations of fever were frequent both day and night. Cinchona, when patients were a little advanced in their convalescence, I gave in substance with port wine. (Query, does not this account for the black vomit having occurred in the *convalescent* cases?) Some cases put on an intermittent form in the convalescent state, but the types were extremely irregular.

It is evident from this statement by the surgeon, that the fever in the *Kent* was not the Bulam or black-vomit fever, two remarkable symptoms being absent, viz. the black vomit and non-secretion of urine. The black vomit is a fatal symptom in the Bulam fever; on the contrary, on board the *Kent* it was said to have occurred in three instances only, (where there were two hundred and forty patients,) and those *in the case of convalescents*, which the surgeon had not seen; and no doubt was produced by the bark administered in substance with port wine. And as to the urine, so far from there having been a non-secretion, the kidneys appear to have acted with more than usual activity, but on account of retention the catheter was repeatedly had recourse to. The very general suffering from pain in the region of the liver, and the evident appearance of swelling of this viscus, with the sudden appearance of very deep orange-colour of the skin, and the urine so dark as to resemble tincture of rhubarb, as mentioned by the

surgeon, had very much the appearance of inflammation of the liver with jaundice.

The very general existence of sore throat, with the future desquamation of the cuticle, would lead to the suspicion of scarlet fever.

The nature of the fever in the *Kent* I shall not attempt to explain, but it appears to me more likely to have been derived from the source verbally reported to me by the surgeon, (the French prisoners and their bedding,) than from the anchorage at Port Mahony where the *Kent* remained only four days, having arrived from a cruise on the 26th of June and got under weigh on the 1st of July; this appears the more likely as there had been a fleet of men-of-war at the same anchorage, for a considerable time, and several merchant vessels and transports waiting for convoy, without disease having appeared on board of any of them, until after the fever broke out in the *Kent* on the 6th of July, and then the only vessels that suffered were the transports, on board of which the slighter cases of fever had been removed from the *Kent*, and by them the disease was communicated to the crews of those vessels. Sir William Burnett says, p. 34, (in his Report upon the *Bann*,) with reference to the *Kent*:

"Here, then, we have a complete proof of a fever arising in an extremely clean and well-regulated ship at sea, without the most remote cause for suspicion of its having been introduced by contagion before the ship left the harbour, acquiring (according to the *opinion of the surgeon*) that property from an accumulation of sick, and not any means existing of completely separating them as they were taken ill. And though the disease did not in proportion extend to so great a number of her crew, nor from difference of climate, prove so fatal; yet in every other respect it bears a close resemblance to that which lately prevailed on board the *Bann*."

It is very unpleasant to contradict this statement as to the surgeon having given his opinion of the disease having be-

come contagious *in consequence of an accumulation of sick,* but he makes no mention of any such opinion in his official Report, but attributes "the *exciting cause*" to atmospheric influence. "Excessive sultry calms, with heavy dews at night, having prevailed some days preceding the commencement of this endemic, which made its appearance off the coast of Africa on the evening of the 6th of July, but on the 7th, 8th, and 9th, the numerous additions to the sick list took place; about 170 cases occurred on those three days." How is it possible to conceive that there could have been any accumulation of sick?

The crew were all *healthy* before the evening of the 6th; within the next three days 170 cases were reported (upon an average, 56 per day). At the close of the third day, there certainly was an accumulation of sick, but so far from the numbers increasing, they very considerably diminished; so much so, that in the course of the next seventeen days there were only 70 fresh cases (upon an average 4 per day), and all this in consequence of the great attention to ventilation, whitewashing, and sprinkling the decks with vinegar; and the disease certainly had little or no resemblance, as Sir W. Burnett supposed, to the fever of the *Bann*, either as to its symptoms, spread, or termination.

I must confess my surprise at the surgeon not having mentioned in his Report, his first suspicion as to the disease having originated in consequence of having received on board the French prisoners, with their bedding, when off Toulon; his attributing the origin of the fever to atmospheric influence, with sultry calms and heavy dews, appears most inconsistent, and not likely to have occurred in this extremely clean and well-regulated line-of-battle ship, when the crews in every other ship in the convoy continued healthy; more particularly as she had been only six days at sea when the disease appeared. The surgeon seems to have been very remiss in his duty in not reporting officially his suspicion of the fever having ori-

ginated from the communication with the French prisoners and their bedding. Notwithstanding his anxious and urgent duties in attending upon such a number of sick, he seems to have got very little credit from the Physician to the Fleet, who in his Report, does not even mention him, and gives all the credit for the disease being checked, to the officers of the ship. He says (p. 33) in his Report upon the *Bann*—"I am of opinion that it was owing to the unremitting attention of Captain Rogers and his officers, the comforts and ventilation of a line-of-battle ship, and the fortunate circumstance of having empty transports, where he placed so many of his sick, that the disease did not extend much further. As no date is mentioned of the *Kent* having communicated with the French prisoners, it is impossible to judge as to the communication of infection from this source, but it is very possible that it might have taken place only two days before her arrival at Mahon. The ship's log would of course give this if I had the opportunity of examining it.

"As to the other ship, the *Scout*, it is a mistake in supposing that the yellow fever did not exist at Port Royal when she sailed."

In the case of the *Bann*, nothing could be more clear than that of her own crew, as well as that of her tender, having been infected. The disease prevailed extensively on shore at Sierra Leone, as well as among the merchant seamen; the very first case which was known having been ascertained by Dr. Barry as a suspicious one, on account of the patient having died with black vomit, and the crew of the *San Rafael*, tender to the *Bann*, were suffering from the fever before the *Bann* sailed.

In the case of the *Eclair*, it was not ascertained until lately that the vomito-negro fever existed at Sierra Leone in the month of July, when the *Eclair* remained there eighteen days at anchor. Commander Harston, who was then first lieutenant

of the *Bann*, informed me by letter, that black vomit did exist, and that Mr. Dawson, the passenger, was unwell *when he embarked*, and died on the fourth day with black vomit.

This fact as to the existence of black-vomit fever at Sierra Leone in 1845 (but to a limited extent), was confirmed by Dr. Aitken, surgeon to the Colonial corps there, who was lately in England.

Since writing the above I have had an opportunity of inspecting the log of the *Kent* for the year 1809, from which the following is an extract:

> "Cape Sicie, N.E. by N., five leagues, p. m. Moderate breezes and fair. 22d June.

"Received from the *Pomone* 47 French prisoners, and a French general, per order."

From which it appears that the fever broke out in the *Kent* fourteen days after the reception of the prisoners on board; and if it did arise from this cause, it is more than probable that individual cases occurred some days before the general outbreak. And as to the fever having originated in consequence of the anchorage at Minorca, or from a crowded state of the sick, for the reasons given, I do not think it can be for a moment thought of. The remedial measures had recourse to by the surgeon were rather extraordinary; he did not bleed, but gave infusions of bark generally on the second day of the attack.

I shall now take into consideration, and make my remarks and observations upon a Report lately published, upon the Diseases of the African Coast, compiled in consequence of instructions from the Lords of the Admiralty, by Dr. Bryson, under the immediate directions of Sir W. Burnett. And as Dr. Bryson in the preface acknowledges most thankfully the great advantage he has derived from Sir William's *daily assistance and advice,* thereby awarding to him the greatest portion of whatever merit may be derived from this publi-

cation, he must, in consequence of his *daily* assistance and advice, share in any responsibility or odium that may be attached to it. I shall therefore consider it a Joint Report, and shall review the history of some of the ships which have suffered, as appears by their Report, from this black-vomit fever on the African station, beginning with the *Eden*.

From the year 1824 to 1829 it does not appear that fever prevailed as an epidemic in *any* of our settlements upon the coast between the Gambia and the equator; nevertheless several of the cruisers lost a considerable number of men during the intermediate years.

P. 85. In the latter end of April and the beginning of May, 1829, it appears the disease first began to prevail as an epidemic in the town of Sierra Leone, and in the shipping in the river. Its *origin*, as usual, was wrapped in *impenetrable obscurity*, although, by interested parties and men of speculative mind, it was attributed to various improbable causes; for instance, it was ascribed to the landing of slaves in the centre of the town by the arrival of three slave vessels.

P. 86. Another opinion was, that it *originated at Sangarrah*, in December 1828, a country thirty days' journey in the interior, or between two and three hundred miles in a north-east direction from Sierra Leone. It was stated to have been *carried thence* by the north-east winds, through Loosoo and Bulam, across to Freetown.

This account of the supposed origin of this fever shows, that it was not a constant resident at Sierra Leone, and that it was believed by the residents there, to be of foreign origin, and imported, either from the interior of the country by the caravans, or by slave-vessels from other parts of the coast.

The following are the tables of mortality for three years prior to this visitation in the whole of the African squadron:

Deaths in 1825.		Deaths in 1826.		Deaths in 1827.	
Athol . .	6	Maidstone .	6	Maidstone .	5
Conflict . .		Clinker . .	1	Clinker . .	2
Barracouta .		Brazen . .	6	Sybille . .	2
Maidstone .	15	Conflict . .	5	Eden . .	3
Redwing .	9	Redwing .	6	Conflict . .	2
Swinger .	10	Swinger .	1	Atholl . .	3
Esk . . .	1	Despatch .	2	Esk . . .	5
		Atholl . .	2	North Star	18
		Esk . . .	2		
		North Star .	3		
Total	41	Total	34	Total	40

FEVER IN THE EDEN.

The *Eden* arrived from England at Sierra Leone on the 2d of September, 1827, and sailed for Fernando Po on the 4th of October, with the necessary stores for the projected establishment at Clarence Cove on that island. On the passage down she touched at Cape Coast and at Accra, but none of the crew were permitted to land.

On the 27th of October she reached her destination, and was moored at the entrance to the Cove, so as to have the full benefit of the sea-breeze, which is frequently so light as to give rise to the idea of a "stagnant state of the atmosphere." Here she remained for nine months; when the ship being free from disease, and the laborious part of the work on the settlement having been completed, she sailed early in June, 1828, for Sierra Leone, touching by the way at Princes Island and Ascension. The weather was cool, dry, and pleasant, until she reached her destination, on the 6th of July, when it rained with very little interruption till the 21st. The crew continued tolerably healthy up to the latter date, when they again left Sierra Leone. In the course of a few days after this the *usual fever* made its appearance, but was chiefly confined to men who had

recently volunteered from timber ships, the greater part of *whom had been living on shore, and committing every kind of excess.* There were five deaths from fever and one from dysentery.

Remissions occurred on alternate days in most instances, but in some this was hardly perceptible. This fever, from the description of persons attacked, was evidently the remittent.

P. 61. On the 20th October, 1828, the *Eden* again sailed from Fernando Po, having embarked seven cases of fever from the shore; they were mostly convalescent, and all recovered on the passage to Ascension, but three *relapsed* on returning to Fernando Po, on the 26th December; and *visceral disease* (common in remittent fever,) having supervened, they were at last invalided and sent to England.

The *Eden,* it appears, remained at anchor in Clarence Cove (Fernando Po) until the 7th of April, 1829, a great number of fever cases having come under treatment during the former months, but *principally relapses.*

The *Eden* returned to Sierra Leone, where she arrived on the 1st of May, *all on board being then healthy.*

Here it must be particularly remarked, that the *Eden,* up to this date, after having been eighteen months on the coast, and chiefly at Sierra Leone, and Fernando Po, had not suffered in any way from what the Reporters upon Diseases of the African Coast call *epidemic* fever. All the cases before this period (most of them received from the shore) were the well-marked remittent of the country, followed by relapses and visceral disease, without the symptom of black vomit, having been mentioned. This ship, which had more than once visited Sierra Leone with impunity, found upon her arrival there on the 1st of May, 1829, what had not existed during any of her former visits, viz. a *malignant* fever prevailing on shore, and on board the trading vessels in the harbour.

And here her melancholy history begins. (African Rep. p. 62.)

The *Eden*, on her arrival at Sierra Leone, found two midshipmen on board one of her prizes, who had both been attacked by the fever. One died in the prize. The other was removed to the *Eden* on the 5th of May, and died on the 6th. The next that sickened was John Russell, a seaman, who had volunteered from the shore: he was attacked on the 3d of May, and died on the 17th. After this there was not any addition to the list of fever cases until the 12th, when the attacks were as follows:

On the 12th	May	1	On the 23d	May	2
13th	,,	2	24th	,,	2
14th	,,	3	25th	,,	3
15th	,,	7	26th	,,	1
16th	,,	3	27th	,,	2
17th	,,	2	28th	,,	3
20th	,,		29th	,,	1
21st	,,	2	30th	,,	3
22d	,,	1	31st	,,	3

On the 20th she sailed from Sierra Leone, and arrived at Fernando Po on the 11th of June, 1829, having lost altogether, in officers and men, *twenty-five individuals.* The *whole of the officers,* with the exception of one *lieutenant* and the gunner, were either dead or *confined to* bed.

"The men were dying daily, amidst almost incessant rain and frequent tornadoes, accompanied with much thunder and lightning; the main-deck was crowded with sick, and constantly wet. The moral effects of these scenes became palpable in every countenance; while, from the want of medical attendance, the *surgeon* and *two assistant surgeons having died,* it was impossible to pay that attention to the ventilation of the ship, or even to the personal comforts of the sick, which their situation required."

On her arrival at Fernando Po, she was placed in *quarantine;* and, on the following day, all the sick were sent on

shore, to an isolated spot on Point Adelaide. On the 14th of June, H.M.S. *Champion* arrived from England, *and Sierra Leone*, with supernumeraries for the island: having been reported *not* sickly, she was immediately admitted to pratique; in consequence, however, of *several bad cases of fever* having been *landed from her*, the *Eden* was released on the following day, the 15th of June.* All the stores and tanks were then sent on shore; the ballast shifted, and the ship herself thoroughly cleansed, whitewashed, and fumigated; after which the convalescents were re-embarked, and she sailed for Princes Island on the 9th of July; she arrived there on the 17th, sailed again on the 20th, and anchored at St. Helena on the 23d of August. The Europeans on board when she left Fernando Po, amounted to fifty-eight, of whom twenty-three were convalescents. The number put on the sick list during the voyage is not known; but the main deck for a long time was crowded with the hammocks of fever patients; most of which were fresh attacks, though there were also many relapses amongst the convalescents. Three deaths occurred between Fernando Po and Princes' Island; and seven between the latter and St. Helena.

The deaths in May	amounted to	27
June	,,	31
July	,,	32
August	,,	7

while out of thirty men left in hospital at Fernando Po, only nineteen were alive on the 1st of December, making the total number of deaths from fever, and its sequelæ, between the 1st of May, and 1st of December, 1829, *one hundred and ten.*

This is certainly the history of a very dreadful visitation, and there never existed a more decided proof of the introduction of a contagious disease into a community! The *Eden*

* This is what was called quarantine.

arrived at Sierra Leone on the 1st of May, *all on board being at the time in good health;* and it is acknowledged that malignant fever prevailed on shore at the time, and also on board the merchant vessels at anchor.

It is evident that the medical men were not aware of the nature of the disease; if they had, so far from allowing an individual (the midshipman) suffering under the influence of the fever to be received on board, they ought to have recommended all communication with the shore to be cut off, as they certainly would have done in cases of plague,—a disease much less to be dreaded than the vomito-negro fever.

It was very evident that the disease was introduced into the *Eden* by the sick midshipman, the first case having occurred six days after his death, viz. on the 12th of May, between which time and the 31st of the month forty-one cases of fever occurred, and before the 11th of June the whole of the officers, excepting five, were either dead or confined to bed.

And from a continuation of the history of the *Eden* it is equally clear that she introduced the same malignant disease into the settlement of Fernando Po, arriving there on the 11th of June, after having lost, in officers and men, twenty-five individuals.

I may also mention here the arrival of another ship at Fernando Po, the *Champion*, direct from England, having touched at Sierra Leone, where she also contracted the same malignant disease, which was raging amongst her crew when she anchored.

The reporters say (p. 68, African Report), "Although fever seems to have prevailed as an *endemic* at Fernando from the time it was first occupied, it does not appear that it became *epidemic* (*black-vomit fever*) until the 29*th June, when* a ser-

geant of marines was attacked; on the following day four other cases occurred, and it then became general: between the above date and the 31st of August there were no less than seventy-seven persons on shore *prostrated* by the disease, to thirty-nine of whom it proved fatal."

The reporters, Sir W. Burnett and Dr. Bryson, state—"It will be proper *here* to bear in mind that the *Eden* and *Champion* arrived from Sierra Leone, the one on the 11th, the other on the 14th of June, BOTH WITH THE EPIDEMIC RAGING ON BOARD," which hint, if it had not come from them, would imply that as the colony was healthy before their arrival, the fever was introduced into the settlement by them (and which there can be no doubt of)!

I cannot help remarking the singular circumstance mentioned (p. 68, African Report), viz. that one individual, a sergeant of marines, should himself form an epidemic!

From the history of the *Sibylle* frigate, which I shall give hereafter, there can be no doubt as to the origin of the fever in this last ship, which, in the course of twelve months, lost ninety-nine of her crew.

The reporters, in attempting to account for the origin of the fever at Sierra Leone, give the following statement.

As this disease commenced at Sierra Leone, it is presumed that its causes must be sought for amongst the febrific exhalations eliminated in that pestilential spot.

I may here, however, observe, before giving their explanation, that this spot is not at all times so pestilential as the reporters would wish to make it appear.

At p. 142, the reporters say—"The *Bonetta* being stationed for the first six months of 1840 off the northern rivers, had occasion frequently to visit both Sierra Leone and the Gambia, in each of which ports she sometimes remained for weeks together. Still her ship's company, generally speaking, con-

tinued healthy,—a circumstance that was ascribed to dry, clean decks, free ventilation, personal cleanliness, sobriety, and to a due regard being paid to the comforts of the crew;" from which it would appear that, in a well-disciplined ship, the spot is not pestilential. And from the reporters' own showing, it is only in the years that the vomito-negro prevails (what they call the epidemic,) that there is any great mortality in the African squadron, as appears by the returns (pp. 134, 141); and from their statements, first at p. 85, "that it did not appear that fever prevailed as an *epidemic* from the year 1825 to 1829;" and at p. 129, between 1831 and 1836, "the squadron, considering the nature of the climate, continued healthy." The active exciting cause of epidemic fever having remained *apparently dormant* upon the whole line of coast during that period.

"In the first place (p. 65) it will be necessary to notice the meteorological phenomena that characterised the season. The rains commenced in *April*, and upon the whole were lighter than usual. There was a violent tornado on the morning of the *3d of May*, and another *on the 17th*, and rain fell slowly but irregularly during the whole month, so that the quantity of moisture and the intense heat of a vertical sun tended greatly to increase vegetable decomposition, and exhalations from the soil. The emanations from the flats between the town and the Bunce River, and from the Bulam shore, *although seven miles distant*,* together with the state of the weather, are therefore supposed to have originated the disease, which spread with fearful rapidity and virulence over the greater part of the colony, and assumed a more than ordinary degree of malignancy, amongst the shipping at anchor in front of the town; some merchant vessels in fact lost *nearly all hands. From a variety of circumstances, it was considered not to have been transmissible from person to person, although it appeared to be developed in certain infected spots, and that*

* This is rather a far-fetched reason.

exposure, for a very short time to the exciting cause in a concentrated form, was sufficient to produce the specific effect; thus a soldier contracted fever in the Earl St. Vincent merchantman, although he remained only two hours on board."

This is certainly a strange attempt to account for the origin of this fever, viz. a tornado on the *3d of May,* and *another on the 17th,* together with the rain falling slowly during the whole of this month, increasing vegetable decomposition, but quite forgetting that at p. 85 (African Report) they give the information of the disease beginning to prevail as an epidemic *in the latter end of April* in the town of Sierra Leone, and in the shipping in the river, *before the tornado,* and *before* the fall of rain during *the month of May.* It is also difficult to comprehend what was the *variety of circumstances,* which made it to be considered not transmissible from person to person, although *it appeared to be developed in certain infected spots in a concentrated form* when it produced its specific effect upon individuals exposed to it. Thus, they say "a soldier contracted the fever in the *Earl St. Vincent* merchant ship, although he remained only two hours on board."

This is rather a lapsus on the part of the reporters; they ought to have added, *in which ship the contagious fever prevailed;* they state that the soldier remained *only* two hours on board, but two minutes would have answered the same purpose!

Can any doubt exist of the fever having been introduced into *this ship* by the midshipman, or of the disease having been imported to the *settlement* of Fernando Po by the *Eden,* the first known case being a sergeant of marines, on the 29th June; and by the end of August the whole of the population had suffered.

Is it not clear that, if the disease had been known, this dreadful mortality would have been prevented? and *upon whom rests this responsibility?*

SIBYLLE FRIGATE.

The *Sibylle* frigate arrived at Sierra Leone from England on the 24th May, 1827, and during the two years she had been on the coast her crew suffered very little from fever.

On the 21st of June, 1829, she anchored at *Fernando Po, her crew all in good health.* "Here she found the *Eden* (p. 52), which ship had lost her captain, surgeon, assistant-surgeon, and a great many men, by *fever contracted* at Sierra Leone. All communication between the *Sibylle* and the shore, or the *Eden*, was prohibited during her stay, with the *exception of the purser, and one or two superior officers.* On the 22d of June (p. 29), however, *they received on board* a sergeant of the royal marine artillery, and seven marines, from the *Eden*, and, on the following day, another marine from the settlement; all these had lately arrived from England in the *Champion.* On the 23d of June, John Meeking, one of the marines who had been received from the *Eden*, was attacked with fever, and immediately sent on shore. On the evening of that day the *Sibylle* sailed from Fernando Po. On the 26th of June, William Love, a boy, was seized with fever, although he had had no communication with the shore, or with Meeking. On the 2d of July, at Prince's Island, Charles Hall, *who came on board at Fernando Po,* was seized; and from that period the disease continued to show itself in different parts of the ship while at sea: it soon assumed a most malignant character, and attacked individuals of every class, age, and temperament, although the Negroes were affected with it in comparatively small numbers, and in a mild degree."

Page 53. "The disease was evidently yellow fever, in the greatest degree of intensity (with two exceptions); *it was of the continued kind;* the stage of excitement short; in the worst cases it terminated fatally between the third and sixth day, most frequently on the fifth. Death was preceded in a

great number of cases by BLACK VOMIT, often accompanied by a dingy or livid hue of the countenance; yellowness of the skin and eyes, were very common before death."

"The sudden cessation of the disease," says Dr. M'Kennal, "on the 28th of August, when forty men were on the list, and when the power of contagion (if it existed) must have been at its height; seems to prove that atmospheric changes had great influence in the production of the disease, as well as in its extinction."

This is another proof of the disease not being known. It is evident that the disease was suddenly checked by the change of climate, the ship having touched upon a cool latitude, when cruising at a distance of fifteen days' sail from the island of St. Helena. The *disease* was destroyed by cold!!

Here is a ship, whose crew, it may be said, remained perfectly healthy on the African Coast for a period of two years —a ship in which the greatest attention had been paid to the health of the crew—a ship (p. 51) remarkable for having the best code of regulations of any on the African station. This ship, the *Sibylle* touches at Fernando Po on the 21st of June, her crew at the time all in good health, where she finds two ships, the *Eden* and *Champion*, which had arrived from Sierra Leone a few days before, *both with malignant fever raging on board*, p. 68.

The captain of the *Sibylle*, from his precaution, having prohibited all communication excepting through the medium of the purser and other officers, seemed to have been aware of the nature of the fever, and of his danger; and, evidently under the impression, that the disease had not yet reached the settlers on shore, received from amongst them, on the 22d of June, the day after his arrival, a sergeant and eight men of the marine artillery, and next day sailed with the hope of escaping the contagious influence of his neighbours. He

was, however, unfortunately disappointed; the poison had already been embarked, and lay concealed in a state of incubation in the constitutions of the marines who had been disembarked from the pestilential ships.

If any one is in the slightest degree sceptical as to the contagion of this fever having been in the first instance communicated to the crew of the *Eden* at Sierra Leone, and afterwards by this ship to the colonists on shore at Fernando Po, who were healthy at the time of her arrival, it appears impossible that any doubt could exist as to the communication of the disease by the marines (received on board from the shore) to the crew of the *Sibylle.*

The reporters, Sir William Burnett and Dr. Bryson, although denying contagion, appear unconsciously aware of its existence, as they say, p. 68, "It will be proper here to bear in mind that (at the time the fever broke out on shore among the colonists) the *Eden* and *Champion* were at anchor with *the fever raging on board*, the one having arrived from Sierra Leone on the 11th, and the other on the 14th of June."

They go farther than this, as if tracing the contagion to the very first individual who was attacked *on shore;* and this they do most effectually (p. 68) to a "sergeant of marines, who was attacked on the 29th of June, fourteen days after the arrival of the last ship. Next day," they say, "four other cases occurred, and it then became general; and that between the 29th of June (the day of attack of the sergeant), and the 31st of August, no less than *seventy-seven* of the colonists were prostrated by the disease, of which number thirty-nine died."

They appear most inconsistent, and undecided in their opinion as to the nature of this disease, apparently denying contagion, but at the same time bringing forward the strongest arguments in favour of its existence. At p. 69, they appear

to have had a *lucid interval,* and thrown off their *non-contagious delusion,* and give the following reasons in favour of the disease having been introduced into Fernando Po by the *Eden* and *Champion.* They state—

"*First.* That the condition of both vessels, while on the passage from Sierra Leone, was such as might very probably engender contagious properties in a disease not originally contagious.

"*Secondly.* That, previously to the arrival of the *Eden* and *Champion,* the colony, which contained but few Europeans, enjoyed (comparatively speaking) good health, but *immediately afterwards a fever appeared,* which committed great havoc amongst the marines, and also carried off several of the colonists.

"*Thirdly.* That, when one member of a family was seized, it usually attacked others of the same family.

"*Fourth.* That medical men were among the first seized.

"*Fifth.* That a fever of so much malignity had not been observed there, since the establishment of the colony."

After these decisive arguments in favour of contagion, it is quite unnecessary to notice the silly arguments on the other side of the question.

The inconsistency of the reporters appears still more strongly at p. 69 ; having, at p. 68, given a very accurate account of the introduction and spread of the disease into Fernando Po by the two frigates, they say " An endeavour was made to keep the crew of the *Eden* separate from those of the colony, but the disease in the course of two weeks increased so rapidly, and being *apparently* not of a contagious nature, but depending upon *common causes peculiar to the locality,* segregation was no longer considered necessary." It is difficult, however to ascertain what those common causes

were. The reporters having stated in the preceding page that no such epidemic had existed in the settlement from the time it was first occupied: and it ought to be kept in mind that the disease and its causes, *originated* at Sierra Leone. Two frigates having touched there at a time when malignant fever prevailed on shore, both were affected; the crews of both suffered on their passage to Fernando Po; there they found a population in good health, to which they communicated the disease. The *Sibylle,* another frigate, arrived with *her crew in good health;* communication takes place between the persons afloat, and on shore, the fever becomes general, thirty-nine of the settlers, and fifty-seven of the crew of the *Sibylle,* fall a sacrifice to it.

The *Sibylle* continued cruising until the 28th of August, when the fever suddenly ceased. She then steered towards St. Helena, where she arrived, as reported by the surgeon, on the 12th of September without a sick man on the list, and that after two days quarantine, the officers and men of the *Sibylle* went on shore and mixed with the inhabitants from that time until the 24th October without any accident resulting from the intercourse. This last observation is, no doubt, to insinuate that the disease was not contagious: it is evident, however, that the authorities at St. Helena had their suspicions, and in consequence detained the vessel under quarantine until it could be ascertained that the disease had actually ceased, as stated by the surgeon. And it ought to be remarked that the whole of the *forty* convalescents were completely recovered in the course of *fifteen* days after the cessation of the fever without *any one instance* of ague, liver affection, or other sequelæ so common in the remittent fever of the country.

It appears (p. 54) that the *Sibylle* left St. Helena on the 25th of October, and again anchored at Fernando Po, when the settlement was considered healthy, and again went to cruise at a great distance from the land, and on the 3d of January

1830, anchored at Prince's Island and was there joined by her tender, the *Black Joke,* which arrived from Sierra Leone, where she had been *very sickly,* and lost twenty-three of her men; her crew, however, were now recovered or convalescent. On the 7th of January she again weighed anchor. Six days afterwards, viz. on the 13th, yellow fever again broke out in the *Sibylle* when off Cape Formosa. Dr. M'Kechnie, an assistant-surgeon who had lately come from England, and who had been on board the *Black Joke* for a few minutes was *the first seized.* The disease soon increased in the ship, and early in February it became very alarming, producing the most dreadful havoc amongst all classes on board. The number of cases during this visitation was eighty-seven, of which number twenty-six died, with the usual symptoms of the most malignant yellow fever.

What can be clearer than this *second introduction* of the infection into the *Sibylle?* She had been at sea for four months, her crew all healthy, when she unfortunately, at Prince's Island, came in contact with her Tender which had just before been in a most pestiferous state, twenty-three individuals having died on board of this small vessel. We know not for what reason the assistant-surgeon was sent (*only for a few minutes*) on board of this pest vessel; his stay, however short, was long enough for him to have imbibed the infection, as it appears that in six days after the vessel sailed yellow fever again broke out, this assistant-surgeon having been the very first attacked.

It certainly was a most unfortunate and fatal visit for the crew of the *Sibylle.*

It is insinuated that the visit of the assistant-surgeon having been *only for a few minutes* it could not be attended with danger; but the doctors ought to be aware that in smallpox, a child being carried to leeward of an infected subject is liable to be struck with the disease in a moment, and I believe the infection in yellow fever is equally powerful.

It is stated (p. 54 Report) that the disease in the *Sibylle* on both occasions originated "principally from noxious emanations from the interior of the ship, *probably* caused by the decomposition of the wood from the long-continued action of heat and moisture, aided perhaps by an accumulation of different substances under the lining or limber board of the hold. On the other hand, it is asserted by the officers that no ship could have been kept more clean or better ventilated. The disease throughout was considered by the surgeons as non-contagious, but by the officers and men as highly so."

If the theory as to the cause of the disease, viz. the decomposition of wood and the filth under the limber board, could be supposed to have any effect, every ship on the station would be liable to it, which is not the case. And it may be asked, what became of this decomposed wood and collection of filth, or how is the high state of the health of the crew for so many months after the arrival of the ship at St. Helena to be accounted for, when the surgeon reported the cessation of the disease, and that he had *not one man* on the sick list. The case of the *Sibylle* is an instance of the many lives that might have been saved if the disease had been known, and the necessary precautions established against it.

And as I have stated that the vomito-negro fever is only an occasional visitor on the African coast, and that during the present century (before 1845), it had only been noticed at three distinct periods, viz., in 1822, extending to 1823; in 1829, extending to 1830; and 1837, extending to 1838. I shall give the mortality in the ships of the squadron during the two periods when (what has been termed) the epidemic prevailed at Sierra Leone or on the coast, which, when compared with the mortality in the whole of the African squadron, must prove the existence of a very unwelcome visitor, and in a very different shape from the remittent, viz., the vomito-negro fever. And it must be remarked, that the pathognomonic symptom, the black vomit, has been most

particularly noticed by Sir W. Burnett and Dr. Bryson in the patients who were carried off in what they call the *epidemic years*, and in *those years only*.

By the following tables, it appears that the total loss sustained by the whole of the squadron on the coast of Africa, during the years 1829-30, when the vomito-negro fever was prevalent, amounted to 273; *ninety-six* of them in one ship, the *Sibylle*, and *ninety-nine* in another ship, the *Eden*.

Deaths in 1829.		Deaths in 1830.	
Clinker	3	Sibylle	39
Sibylle	57	Eden	1
Eden	98	Conflict	1
Hecla	39	Atholl	1
Primrose	1	Primrose	3
Medina	—	Medina	4
Plumper	3	Plumper	23
		Clinker	—
Total	201	Total	72

And it is stated by the reporters upon the Diseases of the African coast, p. 129, "That the squadron, considering the nature of the climate, continued healthy, between the years 1831 and 1836.

"The *active exciting cause of epidemic fever* having remained *apparently dormant*, upon the whole line of coast during that period;"—or, in other words, they might have said, The contagious black-vomit fever not having shown itself during the next six years,—and of which the following tables, showing the number of deaths in the whole squadron, during the six years' absence of this frightful disease, afford ample proof—

DEATHS in the whole Squadron during the following years.

1831.		1832.		1833.	
Ætna	—	Dryad	7	Ætna	—
Conflict	10	Conflict	2	Brisk	1
Atholl	4	Curlew	—	Trinculo	1
Dryad	4	Charybdis	3	Griffon	1
Medina	3	Pluto	6	Curlew	3
Plumper	1	Brisk	—	Britomart	2
Favorite	—	Plumper	—	Charybdis	2
		Favorite	—	Pluto	1
				Raven	—
				Lynx	—
				Fair Rosamond	—
				Forester	—
				Favorite	1
Total	22	Total	18	Total	12

1834.		1835.		1836.	
Ætna	6	Pelorus	2	Raven	1
Pelorus	2	Ætna	1	Buzzard	—
Brisk	1	Brisk	3	Forester	2
Trinculo	2	Lynx	1	Curlew	3
Raven	4	Fair Rosamond	1	Britomart	1
Fair Rosamond	—	Buzzard	2	Charybdis	1
Buzzard	—	Forester	4	Lynx	—
Forester	2	Curlew	2	Griffon	—
Curlew	1	Charybdis	2	Ætna	3
Lynx	—	Griffon	—	Bonetta	—
Griffon	—	Britomart	—	Dolphin	—
Britomart	—	Pylades	—	Pylades	—
Charybdis	—	Pelican	1	Scout	1
		Rolla	—	Waterwitch	2
		Trinculo	—	Columbine	1
				Fair Rosamond	—
				Rolla	1
				Trinculo	—
Total	18	Total	19	Total	16

Total Deaths in Six Years.

1831	22	=105
1832	18	
1833	12	
1834	18	
1835	19	
1836	16	

Those tables of mortality, as I have stated before, are very good evidence of the existence of an occasional and most unwelcome visitor to the settlements on the African coast. After those six years' calm and comparatively healthy state, the active exciting cause of epidemic fever (as it has been called), p. 129, again came into action in December, 1837, in the *Etna* and her tender the *Raven* (and it ought not to be overlooked, that as sure as the mother ship is attacked, it is always communicated to her tender,) at Sierra Leone, where the former remained only three days.

P. 129. The fever, it appears, was *then prevalent on shore* and *amongst the shipping*. Several of the cruisers also, as previously detailed, lost a considerable number of men, but from the illness or death of their medical officers, there have not been any documents transmitted from which any satisfactory account of the disease, *or of its origin can be obtained.** Early in 1838 it attacked the ship's company of the *Forester*, at Sierra Leone, and they appear to have again suffered severely from it during the summer months. In the *Bonetta it broke out at sea*, while she was *running to Ascension*, she being at the time *in a filthy state*, and loaded with corn and yams; it is *proper to observe* that this *occurred subsequently* to her *receiving a prize crew from the Forester, in which vessel the disease was then present.*

In the *Waterwitch* it first made its appearance after leaving

* If the disease had been remittent fever, there could have been no difficulty in accounting for its origin !

the island of Ascension, in the beginning of May 1838; the *disease* was then *committing great ravages amongst the people of the garrison,* having broken out in the *latter part of March.*

"Extensive collections of rain water had been formed and gradually dried up by a powerful sun. One large pool, between twenty and thirty yards in length, and about half that breadth, formed an oblong square, on three sides of which were dwelling-houses. Some of the earliest cases came from this square; the men employed in pumping out the water also suffered most severely. The barracks for the marines to leeward, although not directly in the tract of the wind, also furnished a large proportion of cases, and the new comers, with one or two exceptions, were all attacked; in short, it appears that all who were exposed to the exhalations from these sources contracted the disease.

"Amongst the people there prevailed an opinion that the disease was imported by the vessels arriving from the coast, some attributing it to one, others to another, without any regard to direct proof upon which to base their opinions."

This history of the pool of water, which had been gradually dried up by the hot sun, is brought forward as the cause of the disease in the island, in opposition to the supposed importation by the ships which had arrived, with their crews suffering from the same malignant fever.

And from the history which I shall give of the three vessels, the *Ætna, Forester,* and *Bonetta,* together with that of the *Waterwitch,* which last arrived at the island with her crew in good health, at the time the population were suffering from the malignant fever, I think I shall prove most satisfactorily that the people on shore were right in their opinion as to the introduction of the fever into the island.

ÆTNA.

P. 119, Afr. Report. The *Ætna* arrived at Sierra Leone from Gibraltar on the 30th of November 1837, all on board being then in good health. *Fever was at the time committing great ravages amongst the prize crews and merchant seamen.* The *Ætna* only remained until the 3d of December (three days), for the purpose of completing water, which, as usual, was effected by the Kroomen; she then proceeded to sea. On the 10*th* of the month (the seventh day after sailing) two cases of fever occurred, and on the 12*th* there were two more; of these 3 died, 1 on the fifth day, and 2 on the seventh day of the disease, *with black vomit* and yellowness of the skin. There were not any fresh attacks until the 20*th of December,* when *two others occurred,* and on the 21*st there were five. The disease then began to attack officers and men indiscriminately.* As it was considered to be contagious, recourse was had to artificial means of ventilation, by swinging stoves and wind-sails, and to fumigation, by whitewashing the decks and sprinkling them with chloride of lime.

She arrived at Ascension from Sierra Leone on the 26th of January, after a long passage, during which she lost *twenty-five officers and men;* she was at once placed in quarantine.

The total number attacked was 99 of these 25 died. The disease was attended with yellow suffusion of the skin and eyes, hemorrhage from the gums, and, in fatal cases, with black vomit.

Here we have, in a very few words, the history of a healthy crew being infected at Sierra Leone (where they remained only three days), at a time when the *fever was committing great ravages on shore and amongst the crews of the vessels at anchor.*

FORESTER.

In the early part of the year 1838 fever of a most virulent character assailed the ship's company of the *Forester*, at Sierra Leone, and nineteen fell victims to it, being upwards of one third of her complement; amongst them was the assistant-surgeon. There is not, therefore, any history of the disease until the 20th of July, when the remains of the crew were in a state of convalescence. It appears, however, (p. 131,) that the ship arrived at Ascension on the 4th of February, having lost her commander and several men on the passage. Although she had only one man dangerously ill on board, she was at once placed in strict quarantine, until the 22d of the month, when she was released, there not having been any new case for the previous ten days.

BONETTA.

The crew of the *Bonetta* were in the *enjoyment of good health up to the* 1*st of January,* when it appears she arrived at Accra to take on board a supply of Indian corn and yams for the island of Ascension (p. 121); *a week after leaving the former settlement,* she fell in with the *Forester, in a sickly state,* several fatal cases of *the epidemic* having occurred on board. After *receiving a prize crew from her,* the vessels separated, and the *Bonetta* proceeded on her voyage *to Ascension,* where she arrived on the 30*th of January,* having lost eight men from fever after her communication with the *Forester.* In consequence of the illness and death of the assistant-surgeon, there is not any account of the origin and progress of the disease until another joined on the 3d of February, when the state of the sick list and ship was as follows:—The *commander, master, assistant-surgeon, purser, and twenty-eight seamen and marines,* were all lying about the deck in a most helpless and melancholy state, three with *black vomit,* and to all appearance beyond the aid of medicine.

Shortly after her arrival at Ascension, tents were erected on shore, and the whole of the crew were landed and placed in them; the sick being separated from the healthy. This precaution was unnecessary, or at least without the desired effect, as the few remaining Europeans and three Africans were almost immediately added to the list; making a total of 39, of whom 28 recovered and returned to duty, 3 were invalided and sent to England, and 8 died. (At page 135, it appears that 20 deaths occurred.)

"The fever in this instance displayed all the usual characteristics of the *common remittent or yellow fever;** yellowness of skin, bleeding of the gums, and *black vomit.*

"The first assistant-surgeon who took charge of her after her

* This must be a mistake! Black vomit does not occur in remittent fever!!

arrival, does not allude to the question of contagion; the other, who succeeded him on the 16th of February, states, that from *the information he had received, he was led to regard the disease as decidedly contagious.* The sick were admitted to pratique on the 1st of March."

We have here an account of two vessels, the *Ætna* and *Forester,* whose crews were in good health, having touched at Sierra Leone, at a time when a malignant fever was raging on shore, that in a very few days both these vessels were attacked by the same disease, and that most of the fatal cases were attended with yellow skin and *black vomit.* We find afterwards that one of those ships, the *Forester,* when in this sickly state, falls in with another vessel at sea, the *Bonetta, the crew of this last being healthy.* Unfortunately, however, she received a prize crew from the *Forester*; those men in a few days communicated the fever to the crew of the *Bonetta,* and (p. 135) it is stated that twenty deaths was the consequence, eight of them before her arrival at the island of Ascension. It further appears, that the authorities at this island had some apprehension of the fever being communicated to the population on shore, and that all three vessels had in consequence been placed under quarantine; or rather what was *denominated quarantine,* for we find that their precautionary arrangements did not extend even to the exclusion of foul linen, sent from the ships to be washed on shore, nor to the prevention of the effects of deceased officers being sent on shore to be sold by auction. It is stated (p. 132), that the effects of the deceased officers, who belonged to the *Forester,* were sold on shore on the 3d of March, and those of the officers of the *Bonetta* on the 7th.

As might have been expected, the fever broke out on the 25th of March, eighteen days after the last auction, and committed sad havoc amongst the garrison and inhabitants.

Can it be for a moment doubted that the breaking out of

the fever on the island was in consequence of the arrival of those three vessels in a sickly state, the population on the island being healthy at the time of their arrival, and no such disease having at any period, since the occupation of the island by the British Government, appeared there before, with *one exception,* viz. when it was acknowledged by Sir William Burnett himself, to have been imported in the year 1823, by H.M. ship *Bann.*

If, however, any doubt should exist as to the communication of the disease to the crew of the *Bonetta* by the sickly crew of the *Forester,* or to the island of Ascension by the crews of the *Ætna, Forester,* and *Bonetta,* I shall mention another most decided instance of importation of the fever into a healthy ship, the *Waterwitch,* which is quoted by Sir William Burnett and Dr. Bryson, page 126 :

"She had been employed cruising on the north part of the station, her crew perfectly healthy, and arrived at Ascension in the end of April, when a malignant fever prevailed amongst the inhabitants on shore; but there was not any sickness on board the *Waterwitch* until *the 3d of May,* when she sailed for the coast of Africa. *On that day* one case of malignant fever occurred, and on the 13th, being at sea, four more cases were added to the list, presenting most decidedly *the characteristics of true yellow fever;* from this time the malady continued its ravages to the 4th of June, up to which period no less than sixty had been attacked and fifteen died."

By the following table of deaths in the year 1838, it appears that the only four vessels which suffered from the vomito-negro fever, viz. the *Forester, Ætna, Waterwitch,* and *Bonetta,* lost 73 men, while all the other vessels in the squadron, twelve in number, lost only 42.

DEATHS in 1838.

Raven . .	3	Pylades . .	1
Fair Rosamond	7	Scout . .	15
Buzzard .	3	Saracen . .	—
Forester .	19	*Waterwitch* .	15
Curlew . .	1	Brisk . .	7
Lynx . .	—	*Bonetta* . .	20
Ætna . .	19	Pelican . .	2
Dolphin .	3	Termagant .	—
Total . .	115		

I give also a table of the mortality in the year 1845, by which it appears that the *Eclair*, the only ship which suffered in that year from the black-vomit fever, lost the frightful number of 74, while the whole of the other ships in the squadron, amounting to *twenty-seven*, lost only 47; not so much, upon an average, as 2 men each.

(P. 176.) DEATHS in 1845.

Eclair . .	74	Albert . .	1	Actæon . .	3
Hecate . .	—	Star . . .	2	Cygnet . .	2
Larne . .	1	Ardent . .	1	Espoir . .	1
Waterwitch	2	Styx . . .	5	Flying Fish	1
Ferret . .	1	Heroine .	—	Hydra . .	2
Ringdove .	2	Rapid . .	2	Lily . . .	3
Penelope .	8	Sealark . .	3	Pantaloon .	—
Wasp . .	2	Albatross .	1	Prometheus	—
Growler .	3	Alert . .	—	Ranger . .	—
				Rolla . .	1
Total	121				

ECLAIR.

H. M. steamer *Eclair* sailed from Plymouth on the 2d of November, 1844, for the coast of Africa, touched at Ascension on the 30th, and reached the river Gaboon on the 20th of December; remained there three days, and then stood along the land to the northward; she anchored at Fernando Po on the 25th, and remained there until the 28th.

From that date she continued sometimes under weigh, and sometimes at anchor, until the 30th of January, 1845; she then anchored off Seabar, and remained until the 22d of February, when she again got under weigh, and proceeded to Sierra Leone, arriving there on the 24th of the month.

On the 28th of February she steamed out of the Sierra Leone river, and on the 2d of March again anchored in her former position off Seabar. Between the 15th of February and the 16th of March, boats had several times been despatched to explore the creeks of the Sherbro, and also those in the Seabar branch of the river. The men in these expeditions were necessarily much exposed to all the vicissitudes of the weather, to the malaria exhalations from the muddy banks of the rivers, and from the contiguous mangrove swamps; they slept sometimes on shore, but generally in the boats.

On the 3d of April the first case of fever occurred in the person of William Thorpe, aged 18, who had been in a boat detached between the 18th and 21st of March. He recovered, and was discharged cured to his duty on the 27th.

On the 18th of April William Geary, aged 21, and James Watson, aged 23, seaman, and on the 19th Henry Corry, aged 22, seaman, were attacked with fever; the first died on the 23d, the second on the 24th, and the third on the 25th. All these men were up the Sherbro from the 1st to the 7th of

April, and spent one night in a spot that was considered to be very unhealthy. The next case which appears on the sick list is that of Thomas Smith, aged 23, seaman, who had been employed in the same service; he recovered, and was discharged to duty on the 5th of June. Two cases next appear respectively on the list—one on the 3d, and the other on the 6th of May—under the designation of dyspepsia, but which, by referring to the journal, appear to have been of the nature of ephemeral fever. The one was *thirteen* days, and the other *three* days under treatment.

On the 12th of May the vessel proceeded off Golibah, returning to her old position, however, on the 13th. On the 22d two men, William Forrest, aged 30, private R. M. and F. Ward, aged 19, seaman, were seized. *Both had been employed in the boat expeditions up the Sherbro.* Ward died after thirteen days' illness, and Forrest after seven. The whole of these cases *occurring exclusively amongst the men who were employed in the boats*, it would be difficult to conceive that they were contracted from any other causes than those conditional to the service, and the locality in which they were exposed. On the 23d of May, however, William Connor, aged 22, a stoker, who had not been out of the ship, or employed otherwise than in his usual duties, was seized, and died after four days' illness. The next case was that of George Fulder, aged 28, captain of the forecastle, who had been sent in charge of the Kroomen in the paddle-box boat to obtain water at Turtle Island. He was seized on the 26th of May, and died after an illness of nine days.

On the 4th of June, the vessel still being at anchor in the same spot, W. Field and H. Goodhugh were seized. The former died in three days; the latter, after being *forty-two days* on the sick list, returned to duty on the 16th of July. B. Hill, private marine, was the next. He was seized upon the 5th of June, and died upon the 11th. All these men

were employed in the cutter, which was absent from the ship seven days, viz. from the 22d to the 28th of March, having gone round the island of Sherbro.

From these facts, one important inference at least seems clearly deducible, namely, that the disease *was contracted from local causes exterior to the ship;* for, although two cases occurred in persons who had not been out of her, still, from her *close proximity to the land,* the whole crew must have been more or less exposed to the same malarious emanations as the men employed in the boats, although perhaps in a less concentrated form; while, not having suffered from privation and fatigue, they were not so susceptible of the disease.

The vessel again proceeded to Sierra Leone, arriving there on the 4th of July. During the latter part of the previous month she had occasionally, for a day or two at a time, been under weigh, but never stood to any great distance off the land. *When she arrived at Sierra Leone, the crew were, comparatively speaking, healthy,* and the last remaining cases of fever advancing favorably towards convalescence.

Here it must be most particularly kept in view that the *Eclair* arrived on the coast of Africa on the 20th of December, and that no one case of fever had occurred on board until the 3d of April (fourteen weeks), and that a slight one; in the person of William Thorpe, who was attacked after having been in a boat between the 18th and 21st of March, and discharged for duty on the 27th. The next attack was on the 18th of April; and between this date and the 5th of June, many cases occurred *exclusively* amongst the men who were employed in the boats, with two exceptions only; and although they had not been out of the vessel, must, as stated by the Reporters (p. 184), from the proximity of the vessel to the land, have been more or less exposed to the same malarious emanations as the men in the boats.

However, we are now arrived at a new *era*, and find the *Eclair* in the harbour of Sierra Leone, the crew healthy, on the 4th of July, and having *completely got rid of the remittent or coast fever* ever since the 5th of June. We find that the crew has continued in this healthy state during a period of forty-seven days, including *eighteen* days that the *Eclair* remained at anchor at Sierra Leone; and here begins the history of a new and very different disease.

The following extract is from the surgeon's quarterly return:

"The *Eclair* remained at anchor off Sierra Leone from the 4th to the 23d of July, one of the most unhealthy months of the year. As she was now being paid off, the irregularities, so common on such occasions, could only be partially prevented. Seeing it difficult to control these evils, and as our men had not had leave for nine months, the captain decided on giving them limited leave also, but, unfortunately, few of them came off at sunset as ordered; the majority remained until late, others slept on shore, whilst some, who had straggled into the country, were brought off by the police, and seven were not afterwards heard of.

"Having sent one case of fever to the military hospital, there remained two more on the list, when we left Sierra Leone on the 23d of July, with the *Albert* in tow, and anchored at some distance off the coast. There we remained twelve or fourteen days."

Upon the 9th of August she again weighed, and, with the *Albert* in tow, steamed up to the Gambia, where she anchored on the 10th. *Thirteen cases* of fever during that time were put on the sick list, *six* of which terminated fatally. *A private gentleman*,* who had been *permitted at Sierra Leone* to take a passage in the *Albert*, also *took fever and died*, making,

* This gentleman, Mr. Dawson, embarked on the 23d of July, and died with black vomit on the 27th.

altogether, seven deaths. In all these cases the men had been one, two, or three nights on shore at Sierra Leone. "The fever appears to have been as distinctly remittent as that contracted at the Sherbro, and some of the men had unequivocal black vomit; whilst several of the bodies, it is said, became yellow after death, although, in the 'Medical Journal,' the latter appearance is not mentioned."

On the 15th of August, the fever continuing, and two other deaths having taken place, the *Eclair* prepared to quit the Gambia.

On the 17th of August she weighed, and stood across to Boà Vista, anchoring there on the morning of the 21st. Pratique was at once offered, but declined by Captain Estcourt, until he should have communicated to the authorities on the island the state of the sick, and the fact of the French at Goree having kept the vessel in quarantine while there. Dr. Kenny, an English surgeon resident at Boà Vista, was then directed by the Governor-General to repair on board, and to give pratique, *if the two or three cases of fever said to exist should prove to be the common African fever*. Dr. Kenny returned, and reported that he had seen the medical officers of the *Eclair*, that the fever cases were as had been described, and that he had given the vessel pratique. "Free intercourse was then established between the *Eclair* and the shore."

On the 25th of August five of the worst cases, that they might have the benefit of a free ventilation, were removed into the captain's cabin, he having taken up his residence on shore.

By the 30th of August, *sixteen new* cases of fever having been added to the sick list, and *other five* to the list of deaths, since the ship anchored at Boà Vista, Captain Estcourt expressed a wish to the consul to have the former removed to the shore. "A report, however, had gone abroad that BLACK VOMIT *had occurred* in some of the fever cases, and I mentioned the fact to Captain Estcourt, who assured me that he had

heard nothing to cause foundation for such a report. Dr. Kenny wrote officially, and communicated with the medical officers of the vessel, but *they declared the fever to be common African fever.* The Governor-General advised with the Portuguese surgeon (who happened to be present) upon the propriety of such a step, and as to the danger of contagion, when he answered promptly, 'Oh, no, your Excellency, there is no danger at all; I have often brought sick men on shore, coming in vessels from the African coast, and I never knew any ill effects to arise.' The Governor-General then ended the interview by offering Captain Estcourt the use of the fort upon the island, which was at once readily and gratefully accepted, and the crew, the sick as well as the healthy, were landed there. On the 31st several of the officers were permitted to live in the town, a house having been taken for them."

It must be particularly noticed that this is the first mention of the occurrence of the fatal black-vomit symptom since the arrival of the *Eclair* on the coast of Africa; there was no mention of it in the fatal cases which occurred in the remittent fevers produced by the boat duties; and it must be remarked that the remittent fever ceased with those duties, and that it had prevailed amongst those men only who had been employed at night, and by this means exposed to the malarious influence, and that it did not spread as an infectious disease amongst the crew. The report of the appearance of black vomit evidently created alarm, and showed that the disease was *known* as a very dangerous one to some individuals, although the British naval medical officers did not seem to be aware of its existence; and it is not to be wondered at, as they have been instructed by their chief for the last thirty years to believe that the remittent, Mediterranean, marsh fever, and the vomito-negro fever, are the same disease.

On the 4th September Mr. Hartman, the assistant-surgeon, whose kindness and attention from the first outbreak of the

disease, had been unremitting, was seized with fever, and died upon the 8th. His place, nevertheless, was promptly filled by Mr. Charles Coffey, assistant-surgeon of the *Growler*. But of all the medical officers, and there were not a few, who voluntarily proffered their services for the *Eclair*, none deserves more credit than Dr. G. M'Clure; on the arrival of the *Growler* at Boà Vista on the 6th of September, in which vessel he was returning to England, he at once and unconditionally volunteered to take a share in the duties at the fort, which were then of a most harassing nature. Captain Estcourt has stated that at this period, Mr. Maconchy, the surgeon of the *Eclair*, was "scarcely able to move about from the incessant watching and anxiety of the last six weeks." On the evening of the day upon which these words were written, Captain Estcourt himself was stricken with the malady, while residing in the town of Porto Sal Rey; and as it would appear, impressed with the necessity of making an effort to save the remainder of the crew, he wrote to Captain Buckle, requesting that he would direct "the surgeons of the *Growler* and of the *Eclair* to report their opinions on the steps which they might consider the most conducive to the recovery of the health of the ship's company." These officers, in conjunction with Dr. M'Clure, reported in these words:

"We beg leave to acquaint you that from the great mortality which has already occurred from the malignant fever raging on board, the number of cases at present under treatment, so many fresh cases daily occurring under *the present high temperature*, and the weak state of the convalescents, as well as the worn-out and depressed state of the ship's company, we are of opinion that the measures most conducive to put a stop to the progress of the disease and promote the recovery of those at present ill, as well as to accelerate the perfect restoration of the convalescents, is for Her Majesty's steam-vessel *Eclair* to be removed immediately to a much colder climate.

"We are most decidedly of opinion that from the above-mentioned circumstances, namely, *the extremely malignant character of the fever*, which has *resisted the treatment usually found successful in the common endemic* fever of the coast, its continuance since the removal of the *Eclair* from the coast under *the present high temperature*, as well as the extreme liability that all convalescents from severe coast fever, have *to a return of the disease* on again approaching the coast, the object desired will not be attained if the *Eclair* continues within the tropics; and that the services of that vessel will no longer be available on the coast of Africa with her present ship's company.

"The most desirable measure to be therefore adopted, for the benefit of the ship's company, is for the *Eclair* to proceed immediately to England, or certainly as far as Madeira."

Preparations were then made to quit these regions which had proved so inimical to the crew of this ill-fated vessel. On the 12th and 13th of September the sick and the healthy were again embarked, and on the evening of the latter day she steamed out of the harbour of Boà Vista for Madeira, but not before Dr. M'Clure, who a few days previously, in a state of robust health, had so generously tendered his services, was added to the list of sufferers; and his case, it is proper to observe, was the first, (as noticed in Sir William Burnett's letter to the Lords of the Admiralty, dated October 7th, 1845,) which could lead to a suspicion that the disease had acquired contagious properties.

The fever, the violence of which had apparently somewhat abated from the 9th to the 13th, seemed to have acquired additional malignancy as soon as the *Eclair* reached the open sea, and the cases became more numerous than before; to add to the general despondency which prevailed over all hands, on the 16th, Mr. Maconchy, worn out with anxiety and want of rest, was at last attacked. On the 17th Captain Estcourt paid the common debt of nature, and on the suc-

ceeding day was followed by Dr. M'Clure; several men had also died in the mean time. On the 20th she anchored at Madeira, and on the 21st Mr. Maconchy and three of his shipmates were also numbered with the dead.

Mr. Sydney Bernard, who was also returning to England in the *Growler*, that vessel having followed up the *Eclair* from Boà Vista, was then appointed, *pro tempore*, to act as surgeon in the latter; and there being no appearance of the disease abating while there *were fresh victims for it to attack*, on the evening of the 21st she steamed out of Funchal Roads, and, after a passage of seven days, anchored at the Motherbank on the 28th, having lost four other men, with an addition of eight new cases to the sick list.

It appears, from the history of the *Eclair*, that she reached the river Gabroon on the coast of Africa on the 20th December 1844, and that she kept upon the move from that date until the 18th of April, her crew continuing healthy, with the exception of one slight case of fever. From this time to the 5th of June twelve cases of fever occurred, all amongst the men who had been employed in boating duty, of which number seven died, and that only two cases occurred amongst the men who remained on board.

All these cases of fever are stated (p. 184, Afr. Report) to have been the remittent fever contracted in consequence of exposure to malarious emanations, and being of course non-contagious it did not spread in the ship amongst the sailors who remained on board, neither is there any mention of the *vomito-negro* symptom having occurred during its prevalence.

Here it must be particularly kept in mind that the last case of this remittent fever occurred on the 5th of June, and from that date to the 22d of July (forty-four days) the crew of the *Eclair* continued healthy. The *Eclair* in the meantime had proceeded to Sierra Leone, where she arrived on the 4th of July.

One case of fever appears to have occurred on board on the 22d of July, and another on the 23d at Sierra Leone, on which day the vessel sailed from that port, having, as Captain Estcourt stated in his letter of the 11th September, only one case of fever on board. This patient died on the third day with the fatal symptom of black vomit. (p. 87, Parliamentary Papers.) "Three other men who slept on shore were seized with fever in July, and died, as also a merchant (Mr. Dawson) who went on board *ill* and died on the 27th, the fourth day after the sailing of the vessel," (with black-vomit, as stated in Captain Harston's letter); after this the fever became more indiscriminate in its attacks.

It thus appears that, for a certain period (forty-four days) after the *Eclair* left the sick station off Sherbro, there was a complete termination to this remittent or coast fever, so soon as the river and boat duties were put an end to, and that a new and more destructive disease was contracted by the crew of the *Eclair* at Sierra Leone—the *veritable vomito-negro*, a highly-malignant and contagious fever, which it has been ascertained existed on shore at the time the *Eclair* was at anchor there, by letters from the colonial surgeon, Dr. Aitkin, and Commander Harston, who was at that time first-lieutenant of the ship, and which is confirmed by the case of Mr. Dawson, the passenger, who had contracted the disease on shore and embarked with the infection lurking in his system in a state of incubation. By Mr. Consul Rendall's letter to Lord Aberdeen (p. 164) the *Eclair* was admitted to pratique at Boà Vista, after having been refused communication at the Gambia and at Goree. In consequence, however, of the misrepresentations of the medical officers belonging to her, relative to the nature of the fever which prevailed on board, she was admitted to free pratique at Boà Vista, they having persisted in declaring that it was the common remittent of the coast, and of course not contagious, which may be judged of by the following letter from Captain Estcourt to the Secretary of the Admiralty, dated Boà Vista, Sept. 8, 1848.

"Sir,—It is my most painful duty to inform you of the severe affliction which it has pleased Almighty God to visit the crew of Her Majesty's steam-vessel under my command.

"2. We left Sierra Leone the 23d July, with *one case of fever*, the remainder of the crew quite healthy to all appearance; but before reaching Bathurst, on the 10th August, we had lost seven men, besides a gentleman of Sierra Leone (Mr. Dawson), to whom I had given a passage. At Goree one man died, and we were in consequence refused pratique, and on our way here, three more died.

"3. August 20th. Anchored at this port, and were admitted to pratique; the ensuing week was occupied in clearing holds (which were found to be perfectly clean) and lifting the tanks.

"August 31st. Five men had died since our arrival, the fever was increasing. I therefore accepted the offer of the use of the fort on the island, made by his Excellency the Governor-General, and *following the unanimous advice of the medical men and others* resident here, I landed all the crew, placing those under cover of tents who were well, and the sick in *good airy rooms*. A few soon recovered so as to walk about; but the fever spread rapidly among the crew; and between the 1st and 8th of this month we have lost *three officers, six seamen, three stokers, four marines, and three boys;* making the total number of deaths since leaving Sierra Leone thirty-five, and leaving us fifty-two short of complement."

How different would have been the result, if the vessel had been kept at sea, and steered towards a cool latitude, or even after the crew had been landed, if communication had been cut off, between the sick and the healthy, excepting through the medium of those who had already passed the disease, and were not liable to a second attack of it.

Although it appears from the above extract of Captain

Estcourt's letter, that the three medical officers had been unanimous in their opinion as to the supposed advantage to be derived from landing the crew, they were in a very few days equally unanimous as to the unhappy mistake they had made, and on the 13th of September, reported to Captain Buckle the absolute necessity of having the crew immediately re-embarked. This second report proves how little they knew of the disease, and how badly they had been instructed; in fact led astray, by the publication of their chief, Sir W. Burnett, who considers the Bulam or black-vomit fever, and the remittent, to be one and the same disease, this last being the malaria fever of Malta and Minorca.

And with reference to the observation in their Report, viz.

"From the extreme liability that all convalescents from the severe coast fever have to a return of the disease, on again approaching the coast." This, no doubt, is correct as to the patients who have suffered from *remittent fever*, but not with those who have had an attack of Bulam or vomito-negro fever. This has been most clearly proved by the returns (pp. 26, 107) of the sick at Gibraltar, where there was not the slightest remains of visceral disease after the prevalence of the fever by which many hundred of the troops had been attacked; a remarkable instance of the same kind appeared in the *Sibylle* frigate (p. 131) upon her arrival at St. Helena, after ninety of her crew had been attacked. How different was the case in the Mediterranean, as appears by Sir W. Burnett's own Reports to the Admiral on the station!!

The *Growler* steamer from the same station, having touched at Plymouth on the 38th, where she was detained by the Admiral, Sir John West, who reported to the Admiralty as follows:—

"The *Growler* had, seventeen days ago, communicated with Her Majesty's steam-vessel *Eclair*, on board which vessel there were many cases of African fever, of a most malignant type. I have thought it advisable to detain her in the Sound

until I receive their Lordships' instructions, as they will have received the report of the state of the *Eclair*. I have directed every attention to be paid to cleansing and ventilation, in the meantime."

And this leads me to observe how much better the naval officers seem to understand the nature of this Bulam fever than the medical, at least with reference to precaution. Captain Buckle says in his Report to the Admiralty:

"I have not permitted any communication to take place between the two ships since we left Boà Vista, and as little as possible at that place. But on the important occasion of holding a survey there on the stores and provisions in the charge of the late paymaster and purser of the *Eclair*, I was obliged to appoint officers from this ship, and I fear that a slight attack of fever which a lieutenant, the paymaster and purser, and acting clerk, suffered soon after, resulted from it.

And in his sailing orders to Captain Harston he says:

"You are hereby required and directed to proceed to Portsmouth with as little delay as possible, in consequence of the malignant nature of the fever which still prevails on board Her Majesty's steam-vessel under your command; the surgeons both of the *Growler* and *Eclair* having also delivered their most decided opinions that the only possible means of eradicating the disease is by a total and immediate change of climate.

"You will prevent all communications between the *Eclair*, and any other vessel, boat, or person whatever, from this period, until you shall receive instructions from the quarantine officers in England, unless compelled by necessity."

In consequence of the report from the medical men, the *Eclair* was ordered from Boà Vista, to Madeira, where she was refused communication. She then proceeded to England and arrived at the Motherbank, Isle of Wight, on the 28th of September.

Rear-Admiral Hyde Parker directed the chief medical officer of Haslar Hospital to visit the *Eclair* and to report upon the sickness; the latter at once, and with a perfect consciousness of the responsibility he incurred, declared his willingness to take charge of the sick, and recommended their being sent to a wing in Haslar Hospital, stating, " that notwithstanding the extraordinary mortality that had swept off so large a portion of the crew of this vessel, *he entertained no fear* of her being the means of introducing *epidemic disease* into this country, or that there would be any risk even to the attendants, further than occurs in wards set apart for cases of typhus fever." It had also been directed by the Commander-in-Chief, that a frigate should be removed from the ordinary to the Motherbank, with the view of separating the sick from the healthy. These salutary and humane measures were about to be carried into effect, when it appears, by a letter from the Superintendent-General of quarantine, that he arrived on the spot on the 30th, and " taking into consideration the very sickly state of the crew, and the difficulty of communicating with the vessel at the Motherbank, in the event of boisterous weather, he thought it advisable to order her round to the Foul Bill Quarantine station at Standgate creek, where she would have smooth water and the assistance of the regular quarantine station."

Sir William Burnett and Dr. Bryson object, however, to the Regulations which I considered it my duty to recommend to her Majesty's Government, as well for the comfort of the crew of the *Eclair*, as for the preservation of the public health; they complain of the detention of the crew under quarantine, and, being ignorant of the nature of the disease, they recommend the immediate release of the *Eclair*, although aware of her having been refused communication with the shore at the Gambia, at Goree, and Madeira; being aware also that in her sickly state she was admitted to free pratique at the island of Boà Vista, and that, in consequence of the

misrepresentation of her medical officers, they being in the same unfortunate state of ignorance as to its being the vomito-negro fever, as their chief (Sir W. Burnett), they were at the same time aware of the consequences of the *Eclair* having been admitted to communication with the island of Boà Vista, as they state (p. 194) in their African Report, with reference to this vessel *Eclair*, and the *Bann* sloop of war. "Both vessels," they say, "contracted the disease at Sierra Leone, the one proceeded to the barren rocky island of Ascension, where a disease of the *same character* made its appearance amongst the inhabitants, and committed great ravages,—the other, the *Eclair*, proceeded to the nearly equally barren island of Boà Vista, where a similar disease in a short time afterwards broke out, and raged with equal severity," (I may add, and carried off 400 of the inhabitants). This quotation, an extraordinary one, and most inconsistent coming from them, was no great inducement for me to run the risk, or venture the experiment of introducing the frightful disease into England. What might have been the consequence if the crew of this vessel had been admitted to free communication, and allowed to scatter themselves over various parts of London, as in only *three* days after their proposed release of this ship from quarantine, the fever actually showed itself in the case of Mr. Bernard, the the surgeon, who had embarked only a few days before at the island of Madeira; Lieutenant Isaacson was also attacked two days afterwards; as was the pilot who had embarked at the Isle of Wight; and *all three died* in the course of a very few days; another medical officer belonging to the ship, Mr. Coffey, was also attacked, as was Dr. Rogers, who had embarked from Sheerness.

As they have shown their ignorance with respect to the nature of the disease, they also showed their want of information as to the state of the sick on board the *Eclair*, when they recommended their removal to Haslar Hospital.

The fact is, when the ship arrived, there were only seven patients confined to bed, five of them actually *in articulo mortis*, totally unfit to be removed, and they all died in less than two days. They state, p. 193, African Report, relative to the quarantine laws—"In this instance, in opposition to the more *humane*, *safe*, and equally practical views of the naval departments, they bore with rigid severity, if not with harshness, upon the crew of the *Eclair*."

Their humanity, as it is called, as well as their consistency, may be judged of by the following letter from the chief medical officer at Haslar Hospital to the Admiral, in which it is recommended to land the three or four sick, and *detain the whole of the crew for ten days*, in what they termed the Pestilence, which surrounded them, p. 192:—

"Notwithstanding the extraordinary mortality that has swept off so large a proportion of the crew of the vessel, I entertain no fears of her being the means of introducing epidemic disease into this country; and were the sick placed in well-ventilated wards, with fresh bedding, and the other means of cleanliness afforded by an hospital, I anticipate no further risk to the attendants than would occur in wards set apart for cases of typhus fever. The decision on this point must rest, I conclude, with the Board of Quarantine; and should they decide on giving the *Eclair* pratique, I should recommend the sick being removed to a wing of Haslar Hospital, to be appropriated exclusively for them; and lest alarm should be excited by any of the remainder of the crew being taken ill, IT MIGHT BE ADVISABLE TO KEEP THEM ON BOARD THEIR OWN SHIP FOR EIGHT OR TEN DAYS. I have, &c.

(Signed) JOHN RICHARDSON, Inspector."

Thus it appears that, when I was exerting myself to the utmost to have the crew removed, the naval department *humanely* recommended them to be detained under quarantine for ten days.

I had been alongside the *Eclair* at the Isle of Wight, on the evening of the 30th of September, and had given instructions for her immediate removal to the Quarantine station at Standgate Creek, where she would have smooth water, and the assistance of the Quarantine department; and, without losing a moment, proceeded to London, and waited upon the Lords of the Admiralty; and my request, that two line-of-battle ships in ordinary should be placed at my disposal having been immediately granted, I proceeded forthwith to Sheerness and Standgate Creek, to forward with the greatest possible expedition the necessary arrangements for the crew of the *Eclair* being received on board, in which duty I was most zealously and actively supported by the Captain-Superintendant, now Real-Admiral Arthur. The *Eclair* arrived at the Creek on the 2d of October, where I was, with Mr. J. M. Arnott, waiting to receive her. In the course of the next day, the 3d, all persons fit to be removed were transhipped into the two line-of-battle ships; all those who had already had an attack of fever were removed into the *Benbow*, and those who had hitherto escaped an attack, into the *Revenge*.

Sir William Burnett, however, in his letter to the Secretary to the Admiralty (p. 66, Parl. Papers), gives a very different and false version of the measures had recourse to with reference to the crew of the *Eclair*. He says—"The *Eclair*, on the 3d of October, reached Standgate Creek [*this was not the case, she arrived on the 2d*], where cases continued to occur, until, by directions of the Lords of the Admiralty, two large empty vessels were provided for the reception of the crew, who were removed from the *Eclair* during the 8th and 9th [*this was not the case, they were removed on the 3d*], the sick into one, and the convalescents into the other; after which, with the exception of a slight attack, of an ephemeral nature, in the person of Dr. Rogers, no new case appeared."

With what object Sir William Burnett could so pervert, and

distort the real state of the case is most unaccountable. He had daily reports of all the proceedings at Standgate from his own officer, Dr. Stewart, in one of which (p. 90, Parl. Papers) he says—"*On the evening of the* 3d *of October*, the pilot, and such officers and men as had not had the fever, were sent on board the *Revenge ;* the convalescent, and those who had recovered, were sent on board another line-of-battle ship, the *Benbow ;* while the sick, nurses, medical officers, and Africans, remained on board the *Eclair*, with Commander Harston."

It is thus evident that Sir W. Burnett was informed by Dr. Stewart's Report to himself, that the crew of the *Eclair* were removed without a moment's loss of time into the two line-of-battle ships, on the very day after the arrival of the *Eclair* at Standgate Creek, viz., on the 3d of October, and it would really appear, from the false and erroneous statement of Sir W. Burnett, viz., that the ships had not been provided, nor the crew removed, until the 8*th* and 9*th* of the month, that he had some (I cannot help calling it) malicious object in view, and for the purpose of raising a cabal against me and the quarantine arrangements, as will appear from the following paragraph, p. 192, African Report:

"Thus were the shattered remains of the crew of this devoted vessel, not only compelled to abide *for a number of days longer in the pestilence* which surrounded them, but with the fresh and wholesome shores of their own country in view, they had once more to weigh their anchor and proceed to sea, simply that they might have smooth water, and the assistance of the regular quarantine station. Whether the natives on the shores of the Sherbro, in whose cause they first contracted the disease, would have acted with more humanity, is a question that might fairly be mooted."

And to make things as bad as possible, they (the reporters) proceed as follows, with this wanton and uncalled-for

attack, and bitter aspersions on my official character and conduct:

"The sending the ship to one of the most *bleak and sickly places* on the whole coast of England, the fever being *merely* of a typhoid character, was surely unnecessary, when there could have been no more risk of its spreading, had she been moored in one *of the creeks of* Portsmouth harbour, or in the neighbourhood, than there was in Standgate Creek. Whether any of the men or officers belonging to the ship, who subsequently fell victims to the disease, would have been saved, no one can tell; but that the pilot would have escaped, there are just grounds to believe.

"She left the Motherbank at 9 p.m. on the 1st of October, and, on the afternoon *of the 2d*, arrived at the 'Foul Bill Quarantine Station' in Standgate Creek. On the following day, Mr. Sidney Bernard reported the loss of five other men since the 28th of September; three of these died upon the day the report was closed; *on the same evening, he also was attacked*, and on the 5th, Mr. Coffey, the only other medical officer on board; the last case however was slight. Drs. Rogers and Stewart, having both volunteered their services, the one joined on the 6th, and the other on the 7th; upon the latter day, Lieutenant Isaacson and the pilot were seized, and on the 11th Dr. Rogers. *Mr. Bernard died* on the 9th, the *pilot on the 10th*; and *Lieut. Isaacson*, the last victim of this fatal scourge, *on the 12th.*"

The death of those last persons, in ten days after the arrival of the infected ship in England, is a decided proof, not only of contagion, but that the disease may be imported into England, and of which the following extract from the work of Dr. Caillot, published in 1815, is a very good example. P. 95, he states,

"La Ville de Brest, située beaucoup plus au nord que Cadiz, a pourtant eu des preuves non équivoques du caractère

contagieux de la fièvre jaune. Lorsque cette maladie était dans toute sa force au Cap,* et qu'il revenait beaucoup de vaisseaux à Brest, un employé des douanes fut placé à bord de l'un de ceux qui avaient perdu du monde pendant la traversée; pendant le temps de son séjour à bord, cet homme contracta une fièvre jaune, dont il mourut dans moins de trois jours. M. Duret, chirurgien en chef de la marine, avait vue la malade, il en fit faire l'ouverture sous ses yeux, et l'on trouva toutes les traces que laisse après cette fièvre. Deux autres employés dans les mêmes circonstances furent également attaqués de la maladie des colonies, elle eut chez l'un d'eux une issue aussi funeste que chez le précédent; il succomba le cinquième jour, l'autre fut plus heureux il en réchappa. Il y en eut plusieurs autres exemples au lazaret établi sur l'île de Trébéron dans la rade de Brest; nul doute que les sages mesures proposées par le Conseil de Santé de ce port n'aient contribué à prevenir son introduction dans cette partie de la France."

An equal, if not a stronger proof, not only of its contagious power, but of the possibility of its importation into Europe, is the following extract from page 202 of the same work:

"Le vaisseau sur lequel se trouvait M. Fauchon, ancien chirurgien-major, entretenu, de la marine au port de Brest, revenait en France après avoir perdu beaucoup de monde au Cap, et pendant sa traversée; arrivé à la hauteur du Cap Finistère, il prit un grand bâtement marchand qui sortait de la Mediterranée, et dont tout l'equipage se portait bien; peu de jours après avoir été capturé, et qu'on y eut mis du monde, l'épidémie se manifesta à bord, et enleva presque tout son ancien équipage."

Dr. Cailliot had been at St. Domingo, where he had a very extensive experience; and he quotes many instances of the introduction of the disease into healthy ships and stations.

* In St. Domingo.

I hope I am a bad prophet; but if ever this fever should be imported into England during a warm summer, and attack the population of London and its environs, the mortality in consequence would not be a hundred, or a thousand, but *one hundred thousand* within a very short period. At Cadiz, Seville, and the neighbourhood, this last number fell victims to it in the course of three months; and of the small population in Gibraltar, six thousand persons died within the same period.

With reference to the statement by Sir W. Burnett of the ship having been sent to one of the most bleak and sickly places on the whole coast of England, he gives himself the *coup de gorge*, without injuring me; he ought to have been better informed as to the locality, as it is the spot in which her Majesty's ships *in ordinary* have been laid up for years, without any disease appearing in the men who have charge of them; the site, no doubt, is bleak enough, and if it were sickly, he would be much to blame in not representing it as such. But the assertion is most unfounded, and so far from the situation being sickly, disease, it may be said, is unknown there.

Upon referring to Captain Sir John Marshall, who was Superintendent of Quarantine there, during a period of fifteen years, he says: "The only cases of sickness which occurred during that period were brought there." And Dr. Brown, who has been, during the last twenty years, medical superintendent at the station, states that the deaths amongst the people belonging to the establishment (generally 70 in number), during that period have been 8, viz. 1 from typhus; 4, phthisis; 1, dropsy; 1, diabetes; and 1, influenza; all of whom died on shore.

Sir William Burnett and Dr. Bryson were directed by the Lords of the Admiralty to report upon the medical returns from the African station, and with which, the quarantine in England had nothing to do. They have, however, most

unnecessarily and wantonly, gone out of their way to make unfounded and malicious statements, relative to the arrangements made for the crew of the *Eclair*, during their period of quarantine.

I hope and trust, however, that they will profit by the information I have given them relative to the nature and history of the vomito-negro fever, and pray forgiveness for their inconsistencies and misrepresentations; and, looking to the many lives that have been sacrificed on the coast in consequence of the false and mistaken theory relative to the nature of the Bulam or Vomito-Negro Fever, that they will recommend the establishment of such precautionary regulations as will prevent in future the dreadful mortality, which has prevailed at different times so fatally on board Her Majesty's ships, such as the *Bann*, the *Eden*, *Sibylle*, *Forester*, *Eclair*, and at the islands of Ascension and Boà Vista; and which might, in every instance, have been prevented if the nature of the disease had been known, and the necessary precautions had recourse to.

Before commencing the *Eclair* correspondence, I shall insert a copy of a very interesting letter from Mr. Rendall, British Consul at the Cape de Verd Islands, addressed to the Earl of Aberdeen:

"British Consulate, St. Antonio,
Cape Verds, December 22d, 1845.

"My Lord,—The health of the inhabitants of the island of Boà Vista having been and continuing to be seriously afflicted with a bad fever, to which upwards of 250 persons have already fallen a sacrifice, and a belief being general that this dreadful scourge was introduced by her Majesty's steam-sloop *Eclair*, I feel that it is necessary I should be particular in reporting upon this subject, because the competent officers of the *Eclair* at all times pleaded that the fever which had appeared and existed on board was nothing more than the '*common African coast fever.*' In this understanding, pra-

tique was given, and, subsequently, permission to land the sick; whilst it appears, by two officers' report (Sir William Pym and Mr. Arnott), after the *Eclair* arrived in England, 'that in the first case of fever which occurred after leaving Sierra Leone, the black vomit had appeared.'*

"Her Majesty's steam-sloop *Eclair*, Commander Estcourt, anchored in Boà Vista harbour the morning of the 21st of August; pratique was at once offered to Captain Estcourt, but he replied that he could not think of taking it until he had communicated the state of his vessel, and the fact of the French at Goree having kept him in quarantine during her stay there, to the authorities on shore, and he wrote to me to the same effect. I immediately communicated the facts to the Governor-General, and he desired the English surveyor (Dr. Kenny) to repair on board, and to give pratique if the two or three cases of fever said to exist, should prove to be *the common African fever*. Dr. Kenny reported that he had seen the medical officers of the *Eclair*, and that the fever cases were as had been described, and that he had given the vessel pratique.

"The 30th of August Captain Estcourt complained of an increase in the number of sick, and was very anxious to remove them to the shore. A report, however, had gone abroad, that some of the *fever cases had exhibited black vomit;* and I mentioned the fact to Captain Estcourt, who assured me that he had heard nothing to cause foundation for such a report. Dr. Kenny also wrote officially, and communicated with the medical officers of the vessel, but they declared *the fever to be the common African fever*. I then waited upon the Governor-General, in company with Captain Estcourt, and asked permission for the landing of the sick. The Governor-General advised with the Portuguese surgeon (who happened to be present), upon the propriety of such a step, and as to danger by contagion; when he answered promptly, 'Oh, no,

* Report by Sir William Pym and Mr. Arnott, p. 178.

your Excellency, no danger at all; I have often brought sick men on shore coming in vessels from the African coast, and I never knew any ill effects to arise.' The Governor-General then ended the interview, by offering to Captain Estcourt the use of the fort upon the island, which was at once readily, and gratefully accepted, and the crew, sick and well, were landed there. Part of the officers were permitted to live in the town, a house having been taken for them.

"The anxiety which this vessel gave me during her lengthened stay was, I assure your lordship, of the most painful description. The daily reports of deaths, the alarm of the people, the belief that the fever was one of the worst description, and the fear of subsequent consequences, were all of the most distressing nature, although the opinions of the medical men continued to be that the fever was merely the common African fever, and that no danger existed of its spreading among the people.

"Their fears had not subsided at the events already recorded, when it was reported, the 20th September (seven days after the steamer had left), that one of the white Portuguese soldiers, who had been housed at the island with the crew of the *Eclair*, had died in the fort. The following day another also died, and the remaining soldier in the fort (a coloured man) was reported sick. Another coloured soldier was sent to assist his comrade, but who being also taken sick, the authorities at once abandoned the fort and island, and caused the two sick men to be brought to the town, and they were lodged in a house near the sea beach.

"Up to the 9th of October, extraordinary heat, and the fall of a large quantity of rain had been experienced, events which were surprising to the oldest inhabitant. The fever then began to show itself, and the first fatal case in the town is said to have taken place *in the house* where the two coloured soldiers from the fort had been brought and recovered from their sickness. Each succeeding day, to the end of the month, gave two, and sometimes three cases daily, all occurring within

the immediate neighbourhood of the house where the first death took place. A Portuguese surgeon had been brought from Porto Praia, who, with the Portuguese practitioner in the town, maintained that the fever arose from the presence of the stagnant water, and they so held the same opinion, until the 20th of November, when they openly declared it to be a fever of the worst description and of a most contagious nature. From this date clean bills of health to vessels were refused, and all vessels leaving the port for any of the neighbouring islands, were subjected upon their arrival to be placed in quarantine for thirty days.

"Up to the first week in December the fever continued to rage, and at that period it had found its way into almost all the country villages, the deaths averaging seven and eight daily. The last report I have received from Boà Vista is to the 21st instant, to which date 250 had died.

"No Portuguese resident of any note has suffered; the English have, however, suffered considerably, having lost one third of their number, viz. Mr. and Miss Pettingall, Dr. Kenny, and two servants of Mr. Macaulay. The sickness prevailed mostly amongst the lower orders, and consequently there was much misery, even for the want of common food; and I regret to say, they had little or no medical advice or medicine. The leading symptoms of the disease was black vomit, pains in the head, back, and thighs, with a suppression of urine, and often the breaking of a blood-vessel. It is said that there was also a fever of a milder type prevailing, arising from the presence of the stagnant water, which had not the same alarming symptoms, and gave way to proper treatment. The fever proved contagious to those who acted as nurses to the sick; this was observed to be the case almost without an exception.

"The medical men recommended the European residents to leave the island, and the Governor-General, his family, staff, and all the *employés* attached to head-quarters, left the morning of the 24th of November for the island of Brava. The

Governor of the island, collector, and others had left for the island of Sal some days previous. Mr. Macaulay and family, and Mr. Pettingall and family, had also left some time previous for the island of St. Nicholas. The latter, with his family unexpectedly returned to Boà Vista, and his daughter died on the 24th of November, and himself on the 5th of December, while performing quarantine at the island of St. Nicholas. I have the honour to state to your Lordship that I came over here with my family on the 1st of December, leaving the Vice-Consul at Boà Vista. The great excitement which I endured for nearly four months has, I regret to say, impaired my health very considerably, that a change of air became imperatively necessary.

"I have been thus particular in detailing to your lordship events, as they occurred at Boà Vista, because, I assure your lordship, that if the authorities of the place could have imagined that the fever on board the *Eclair* had exhibited a dangerous type before her arrival, they never would have granted the vessel pratique. The report of Sir W. Pym and Mr. Arnott says that such was the case; and the information appears to have been derived from the survivors on board the *Eclair*. The medical men who belonged to that vessel are now numbered with the dead; yet it must always be a cause of regret that they were not more circumstantial in their statements, particularly to the medical officers who were deputed by the authorities to confer with them, as the dreadful loss of life I have here detailed to your lordship, would no doubt have been averted, besides saving to many persons great pecuniary losses, which the panic amongst the islands has caused to a very considerable extent.

I have, &c.,

JNO. RENDALL,

"Her Britannic Majesty's Consul."

Extract of a Letter from Mr. Macaulay, Member of the Commission at the Cape de Verd Islands.

"St. Nicholas, Cape Verde Islands,
December 24th, 1845.

"My Lord,—In my despatch of the 10th current, reporting the death of my colleague, Mr. Charles Pettingal, I referred to the malignant fever which was committing fearful ravages in the usual healthy island of Boà Vista, and to its supposed introduction by Her Majesty's steam-sloop *Eclair*.

"It has since occurred to me that your lordship would be desirous of knowing whether this pestilence, from which one of the Mixed Commission has lost his life, and which has driven away and dispersed the remaining members, may be considered to have arisen from a wilful, reckless, and dishonest concealment of facts, on the part of one or more of our naval officers, or from want of proper caution on the part of the local government.

"Judging after the event, it is not difficult to see that a different course of proceeding on both sides would have saved us from our present troubles. But this circumstance does not necessarily imply that in any particular quarter we are justified in imputing blame, except so much as we may all equally share for not having apprehended danger, when (as it has been since too plainly shown) it ought to have been apprehended and provided against.

"One thing is quite clear, that the medical officers of the *Eclair*, who had never previously served on the African station, misunderstood the malady which prevailed on board their ship, declaring from first to last that it was nothing but the common coast fever, an opinion which, whilst it unhappily obtained the unequivocal concurrence of the only Portuguese doctor in the island, received also the tacit assent, if not the unreserved approval, of our only English doctor.

"Captain Estcourt only lived three days after the *Eclair* left Boà Vista on her voyage to Madeira and England. Calm, firm, and self-possessed, under the most trying circum-

stances, he wholly devoted himself during the last weeks of his life, to alleviate, as far as it was possible to do so, the sufferings of such of his men as were seized with the fever. From an early hour in the morning to a late hour in the evening, barely allowing himself time in the interval to take his meals, he passed day after day with the numerous sick in the hospital, cheering, consoling, and supporting them; and when his own turn came, he found (I am happy to learn) that peace which he had been instrumental in bringing to so many others." (Signed) H. W. MACAULAY."

The yellow fever being a disease of a very distant climate, so little known, and not expected to make its appearance in this country, no interest had heretofore been taken respecting it. On the arrival, however, of the *Eclair* at the Mother-bank (Isle of Wight), in the autumn of 1845, a considerable sensation was excited, more particularly in that vicinity, and as very little of the history of this ship is known excepting through the medium of Parliamentary papers. I shall insert a portion of the correspondence which took place from the date of her arrival in England, until her release from quarantine.

The *Eclair* arrived on the 28th of September, having a yellow flag flying with a black ball in the centre (a signal for having a contagious disease on board); this was hoisted by order of Captain Buckle, the senior officer at Boà Vista.

As soon as she anchored she was visited by Dr. Salter, who made the following report:

"September 28th, 1845.

"I hereby certify that I have examined the commander and surgeon on board Her Majesty's steam-ship *Eclair*. I find that as many as sixty have died of fever, and that as many as seven are still suffering from that disease. Three of the cases have commenced within the last week, and the type of the fever is of the most severe form,—that accompanied with *black vomiting*. Under these circumstances I have

recommended the Superintendent not to release the vessel, and submit this report of the case. I cannot but consider the disease contagious.

(Signed) THOMAS HEN. SALTER, M.D."

Her arrival was not known in London until the afternoon on the 29th. Next morning, early, I proceeded to the Quarantine Station, and after having been along side, I made the following report:

Sir William Pym to the Hon. W. L. Bathurst.

"October 1st, 1845.

"Sir,—I have the honour to report for the information of the Lords of her Majesty's Privy Council, that yesterday I went alongside the *Eclair* steamer, which arrived at the Motherbank from the coast of Africa on the 28th ultimo, when I found that she had been previously visited by Mr. J. Arnott, who had made an arrangement with Rear-Admiral Parker at Portsmouth, for a frigate from the ordinary to be removed to the Motherbank, with the view of separating the sick from the healthy; but taking into consideration the very sickly state of the crew, and the difficulty of communicating with the vessel at the Motherbank, in the event of boisterous weather, to be looked for at this season, I thought it advisable to order her round to the Foul Bill Quarantine Station at Standgate Creek, where she will have smooth water, and the assistance of the regular quarantine establishment. I beg further to state, that having reported this change to the Admiral Superintendent at Portsmouth, I returned to London and waited upon the Lords of the Admiralty, who immediately offered every assistance, and placed at my disposal two men-of-war in ordinary in the Medway, anchored near to Standgate Creek, where I shall proceed forthwith to superintend the necessary arrangements.

I have, &c.,

(Signed) WM. PYM,

Superintendent-General of Quarantine."

Upon my return to London, the following proposal was submitted to me for my opinion and report:

Dr. Richardson to Rear-Admiral Hyde Parker.

"Royal Naval Hospital, Haslar,
September 29th, 1845.

"Sir,—In obedience to your directions, communicated by Lieutenant Parr, conducting the duties of superintendent of this hospital, I have gone to the *Eclair*, now lying in quarantine at the Motherbank, and obtained the following information from the surgeon, namely:

"That sixty-five of the crew have died of the bilious remittent fever endemic on the coast of Africa; that five of them died since the *Eclair* left Madeira on the 21st instant, and one last night. At present there are twenty-three sick, and eighteen of the crew who have not been ill. The whole ship's company have acted in their watches as attendants on the sick.

"Mr. M'Clure, an assistant-surgeon who went on board at Boà Vista, died a few days afterwards on the passage to Madeira; all the rest who have had the fever, were exposed to malaria on the coast. The *Eclair* left Gorée on the 17th August, and Boà Vista on the 28th of the same month.

"Notwithstanding the extraordinary mortality that has swept off so large a proportion of the crew of this vessel, I entertain no fear of her being the means of introducing epidemic disease into this country; and were the sick placed in well-ventilated wards, with fresh bedding and other means of cleanliness afforded by an hospital, I *anticipate no further risk* to the attendants than would occur in wards set apart for cases *of typhus fever.*

"The decision on this point must rest, I conclude, with the Board of Quarantine; and should they decide on giving the *Eclair* pratique, I should recommend the sick being removed to a wing of Haslar to be appropriated exclusively for them;

and lest alarm should be excited by any of the remainder of the crew being taken ill, it might be advisable *to keep them on board their own ship for eight or ten days.*

I have, &c.,

(Signed) JOHN RICHARDSON.

Med. Inspector."

To which I replied as follows:

Sir William Pym to the Clerk of the Council in Waiting.

"October 1st, 1845.

"Sir,—With reference to Dr. Richardson's letter of the 29th ultimo, submitting, through the Admiral Superintendent of Portsmouth Dockyard, a proposal for releasing the *Eclair* steamer from quarantine, and removing the sick from on board of her into Haslar Hospital, I beg leave to state, that the disease from which the crew of the *Eclair* have suffered is one against which Europe generally has established a quarantine; and being aware of the disastrous consequences to the mercantile interest in this country, in the event of the *Eclair* being admitted to pratique—viz., the establishment of a rigid quarantine by most of the European powers, but certainly by the Italian States, upon all vessels arriving in their ports from the United Kingdom. For this reason alone, and without entering into a discussion relative to the security of the public health, I object most decidedly against the release of the *Eclair*, as well as against the landing of the crew.

I am, &c.,

(Signed) W. PYM,

Superintendent-General of Quarantine."

And it appears by the following letter from Capt. Gallwey, British Consul at Naples, that I was not much out in my conjecture:—

Captain Gallwey to the Earl of Aberdeen.

"British Consular Office, Naples,
October 17th, 1845.

"My Lord,—I have the honour to report to your lordship, that I have this moment received a despatch from his Excellency the Prince of Scilla, Minister of State charged with the Portfolio of Foreign Affairs, of which I herewith transmit a translation, informing me that the Board of Health of this capital had, after full deliberation on the unfortunate case of her Majesty's sloop *Eclair*, decided this day, that vessels arriving at Naples from any part of the coast of England between Portland and Dover, will be refused admittance in the ports of this kingdom; and that vessels from all other parts of England will on arrival be subjected to a quarantine of twenty-one days.

Extract from the Proceedings of the Supreme Board of Health at Naples, they supposing the Disease to be Oriental Plague.

"October 25th, 1845.

"If it be true that on the western coast of Africa bounded by the Atlantic, the plague does not exist, it is also true that the ship in question is a cruiser, which in one of her visits might have contracted a disease.

"That whatever may be the case, it is certain that the disorder must be a most extraordinary one with which the *Eclair* is infected, if it has produced so many lamentable results; and so much the more extraordinary, as other vessels which have held the same course as the *Eclair* upon the same coast of Africa, have not contracted any disease.

"Considering that such being the case, no positive information having been received respecting the nature of the above-mentioned disorder as already stated; the disorder not having yet ceased on board the *Eclair*, the time of the arrival of the

vessel at Portsmouth not being sufficiently well ascertained, to allow of the period of time which has elapsed to be duly calculated.

"The Board has decided by a majority—

"To submit to his Excellency the Minister of the Interior, that for the present no change can be made in the measures of quarantine now in force against England."

As the Neapolitan Board of Health (by their correspondence) had no idea of the security by quarantine *afloat*, I wrote the following for their information.

No. 6.—*Sir William Pym to the Hon. W. L. Bathurst.*

(Extract.)

"Council Office.

"I think it proper to state, for the information of the Board of Health at Naples, the nature of the precautions which have been taken by the quarantine department in England, with the view of preventing the introduction of the fever on board the *Eclair*.

"In the first instance the *Eclair* was ordered to the Foul Bill Quarantine Station (lazaretto sporco) of Standgate Creek—a position which is distant *two leagues* from the mouth of the Thames, and completely cut off from all intercourse with the shore or with other vessels. Upon her arrival at Standgate Creek, three empty men-of-war were provided for the reception of her crew:—

One for the persons who had passed the fever and were convalescent;

A second for those persons who had escaped the fever;

And a third as an hospital-ship for the reception of the sick, with the medical officers and nurses.

All those removed into the first two vessels underwent the spoglio; were supplied with fresh clothes and bedding; the

bedding left by them on board the *Eclair* (sheets and blankets) were immersed in water, and the mattresses burnt; the boats were taken from all those vessels so as to prevent communication, and they were visited and supplied by the quarantine department. After the arrival of the *Eclair* in England, only six persons were attacked with the fever, of which number four died. The *Eclair* arrived at the Motherbank on the 28th September, 1845, and the last person taken ill was on the 9th of October : from that period all persons on board continued in good health, and the clothing and bedding having been again purified, the three vessels with the *Eclair* were released from quarantine on the 31st of October, 1845, since which period there has not been the slightest suspicion of the disease, either on board ship or on shore.

The Board of Health at Naples, after a tedious correspondence on the 14th of November, made up their minds to take off the quarantine upon England.

"Naples, November 14th, 1845.

"I hasten to make known to your Excellency that in consequence of the favorable accounts which have arrived from England, the Supreme Board of Health, which met this day according to my summons, has decreed that from this date all the measures established against vessels coming from England by the preceding resolutions of the 17th and 20th of October last, are abolished, as well as the quarantine of observation against vessels traversing the ocean, and has abolished the necessity of a certificate, as previously required, for those coming from Malta and Gibraltar; so that from this time forward, there will be free pratique for the said vessels in the ports of the royal dominions."

"The Officer in charge as Chief of the Department,

(Signed) CAV. F. DE FERRANTE.

"The Hon. William Temple."

It appears, however, from the following order, that the *Eclair* was released from quarantine, some time before the apprehensions of the Neapolitan Board of Health at Naples were quieted.

"Council Office, October 30th, 1845.

"Whereas there was this day read at the Board, a letter from the Secretary of the Customs, relative to the steam-ship *Eclair*, and Her Majesty's ships *Revenge, Benbow, Worcester,* and *Griffin,* now under quarantine at Standgate Creek, which letter (stating the several circumstances relative to the health of the crew of the said ships) being taken into consideration, it is hereby ordered in Council, that the said ships and all persons on board be discharged from all further restraint on account of quarantine.

(Signed) W. L. BATHURST."

The only person who had any apprehension (and it appears rather inconsistent in him) was Sir William Burnett, who so early as the 7th of October addressed the following to the Secretary of the Admiralty.

"As it is desirable that means should be taken to prevent the disease from again making its appearance in this ship, I would very respectfully suggest to their Lordships, that so soon as the *Eclair* is admitted to pratique, all the sails and stores should be removed into a hulk and *hung up and exposed to the air for at least ten days,* during which time they should be shaken, or, if sails, slightly beaten with a stick.

(Signed) W. BURNETT."

This is a most singular recommendation, more particularly as coming from Sir W. Burnett, who, only a week before, had pronounced the safety of this vessel being released from quarantine, and the sick being disembarked and placed in Haslar Hospital.

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Sir William Pym and Mr. J. M. Arnott to Mr. Greville.

" Council Office, Whitehall,
October 3d, 1845.

" Sir,—Agreeably to the instructions from the Lords of Her Majesty's Council, we proceeded to the quarantine station at the Motherbank early on the morning of the 30th, to inquire into the particulars connected with the mortality and the prevalence of a malignant fever on board Her Majesty's steamer *Eclair*, (under quarantine), which arrived on the evening of the 28th ultimo from the coast of Africa. Having gone alongside, and interrogated the acting commander, Harston, and Mr. Bernard, surgeon, the following is the result of our inquiries.

"*L'Eclair* sailed from Devonport in November 1844, having a crew of one hundred and forty-six, officers and men, for the coast of Africa, on which station she remained until the 23d of July last, up to which period she had lost nine men from the common coast fever.

" Four days after sailing from Sierra Leone one man died with fever and *black vomit*, the first case of the kind which had taken place ; this man had been brought on board on the morning of the 23d, having been the three previous days on shore. During her voyage she touched at Gambia and Goree, at both of which places she was refused pratique, and arrived at Boà Vista on the 21st of August. During the voyage eighteen were attacked with the same fever with black vomit, of which number thirteen died. At Boà Vista the disease continued to spread rapidly amongst the crew, when, permission having been obtained from the Portuguese governor, it was determined to land the crew, sick and well, and purify the vessel. A fort was appropriated for the accommodation of the seamen and sick, and the officers obtained lodgings in the town. Every means were taken to purify the ship by washing and whitewashing, fumigation, &c. ; all the Kroomen remaining on board, with the exception of six employed in

attendance upon the sick. The disease, however, continued to prevail amongst the officers and men on shore, thirty-one men having died, between the 21st of August and the 13th of September. Under these circumstances a consultation was held by three naval surgeons, and upon their report and recommendation it was determined that the steamer and crew should proceed to England. The ship's company were, in consequence, re-embarked, and sailed on the 13th of September, Captain Estcourt having been taken ill the day before leaving Boà Vista, and died on the 16th. At Boà Vista, the assistant-surgeon Harte, of the *Eclair*, died, when Mr. M'Clure, a naval surgeon, passenger in the *Growler*, and Mr. Coffy, assistant-surgeon of the *Growler*, volunteered their services on board; here, also, seven seamen volunteered from the *Growler*. Dr. M'Clure died on the voyage to Madeira, and one of the volunteer seamen was taken ill of the fever and recovered.

"Upon the arrival of the steamer at Madeira the authorities refused permission to communicate with the shore, as had been previously done by the French at Goree; but at this island Mr. Bernard, a naval surgeon, volunteered his services, and was received on board with two seamen. From the day of her sailing from Madeira, the 21st of September, up to this date, the 30th, seven deaths have taken place from the fever, and eight new cases have occurred, viz.:

Deaths.				Fresh Cases.			
2	on the	21st	of September.	1	on the	22d	of September.
1	,,	25th	,,	1	,,	23d	,,
1	,,	26th	,,	2	,,	25th	,,
1	,,	28th	,,	3	,,	26th	,,
1	,,	29th	,,	1	,,	29th	,,
1	,,	30th		—			
—				8			
7							

"The fever still prevailing on board, the first measure

deemed necessary was that the ship should be kept in strict quarantine; second, that the healthy should be separated from the sick. The steamer was, in consequence, ordered to the Foul Bill Quarantine Station at Standgate Creek; and an arrangement having been made with the Lords of the Admiralty, by which two ships in ordinary, with a proper supply of bedding, &c., were ordered to be placed at the disposal of the Superintendent of Quarantine at Standgate. With the view of personally superintending the arrangements, we proceeded to Standgate Creek, and having ascertained the number of officers and men who had hitherto escaped an attack of the fever, viz. forty-one, they were directed to be immediately transferred to the *Revenge*, having first undergone the operation of ablution, and afterwards supplied with clean clothing and bedding. All those who had recovered from the fever, together with such number of convalescents as were in a state to be moved, were directed to be transferred to the *Benbow*, leaving only on board the steamer the sick and such number of officers and men as the commander might think necessary. The Kroomen also to remain on board (not one of whom had been attacked with fever), excepting such number as might be thought necessary to assist on board the *Revenge* and *Benbow*. Since the 30th ultimo, three seamen have died; but we are happy to state that no fresh case of fever has occurred since the 29th ultimo, and that at present there are only two men confined to bed with the fever, and eleven convalescents under the care of the two medical officers, a surgeon, and assistant-surgeon, who have been on board ever since the *Eclair* sailed from Madeira. And we have a confident hope, from the present state of the crew and the measures adopted, that the progress of the disease is arrested.

We have, &c.,

(Signed) WM. PYM.

J. M. ARNOTT."

As a precaution against ships coming to England with yellow fever on board, I wrote the following:

Sir William Pym to Mr. Greville.

"Council Office, Whitehall;
October 22d, 1845.

"Sir,—In consequence of the arrival lately of men-of-war steamers from the coast of Africa, whose crews had suffered from the disease known as the yellow, Bulam, or black-vomit fever, a disease of a highly infectious nature, much more to be dreaded than the plague, and if imported into this country during the summer months would occasion a most frightful mortality, and would for a long period of time prove disastrous to commerce, in consequence of the rigid quarantine which would be established in all parts of Europe, but more particularly in the Mediterranean, upon all vessels arriving from the United Kingdom: it is a disease of a warm climate, hitherto unknown in England, and imported by means of an artificial warm climate having been kept up during the voyage by the fires of the steamers: I think it, therefore, of the utmost importance that some regulation should be established by the Lords of the Admiralty, to provide against the possibility of this disease being imported into this country during the summer months, by the arrival of men-of-war steamers from the coast of Africa or the West Indies, whose crews had suffered from this fever, either on their station or on the homeward voyage. Such an arrangement, I conceive, might be made by the Lords of the Admiralty making the period of service of men-of-war, but more particularly of steamers, on the African and West India stations, terminate on the 1st of November, so that by taking their departure from the coast in the course of that month or December, they would arrive in England at a season of the year, when the degree of cold would be such, as is considered sufficient to destroy the infectious nature of the disease. And in the event of any steamer leaving the coast with the disease

actually on board, the officer commanding should be directed to discontinue the steam power and have recourse to the sails, and steer to the northward, a measure which in many instances is known to have put a successful termination to the disease in sailing vessels. In confirmation of the safety and necessity of my proposal, I beg further to state that vessels from the coast of Africa and the West Indies (however healthy may be the state of their crews) are not permitted to enter the ports of Spain during the warm months, viz. between the 1st of July and 1st of October, but are compelled to repair to one of the foul bill lazaret stations until the commencement of the cool season. I have thought it my duty, as Chief of the Health Department, to make this statement to you for the information of the Lords of Her Majesty's Council, trusting that if their lordships approve of my suggestion they will submit the same to the Lords of the Admiralty for their consideration.

I have, &c.,

(Signed) W. PYM,

Superintendent-General of Quarantine."

This letter having been forwarded to the Lords of the Admiralty, the following was received in reply, from the Secretary to the Admiralty.

The Secretary to the Admiralty to the Hon. W. L. Bathurst.

" Admiralty, November 22d, 1845.

" SIR,—Having laid before my Lords Commissioners of the Admiralty your letter of 10th instant, with a copy of a letter from the Superintendent-General of Quarantine relative to the late sickness in Her Majesty's ship *Eclair*, I am commanded by my Lords to acquaint you, for the information of the Lord President of the Council, that my Lords having referred this matter to the Director-General of the Medical Department of the Navy, I herewith send a copy of his opinion upon the subject, begging at the same time to observe, that they concur

entirely in the views of the Director-General as to the inconvenience (if not mischief) that would arise if the departure of Her Majesty's ships from the coast of Africa and the West Indies were confined to the periods proposed by the Superintendent-General of Quarantine; and my Lords would submit (considering the magnitude and importance of the question) the propriety of a further consideration of the matter by Her Majesty's Government, before proceeding to give an order upon the subject. I have, &c.,

(Signed) W. A. B. HAMILTON."

Sir William Burnett to the Secretary to the Admiralty.

"Admiralty, November 21st, 1845.

"In laying before their Lordships my observations on opinions given, and the proposals made, by the Superintendent-General of Quarantine relative to the late events in the *Eclair*, and transmitted to their Lordships by the Lord President of the Council, I must regret that I cannot coincide in these opinions, nor in the recommendations he has made relative to ships sailing from tropical climates, and even if I believed the disease to be of the nature, and endowed with the properties the Superintendent-General assigns to it, I should deprecate in the strongest manner the course he wishes to see pursued.

"It is perfectly evident from the history of the *Eclair* and her proceedings on the coast, that the fever in question arose from causes totally distinct from infection, that it was in fact the *usual remittent fever of the coast, produced* originally by the influence of marsh miasmata, heightened by the exposure of the men in boats when absent from the ship for many days together, to miasmatic influence, and to the *subsequent irregularities* which the men committed in Sierra Leone, when they unfortunately obtained leave to go on shore, and where great excesses were committed, which combination of causes has never yet failed to produce a fearful increase of

febrile disease, particularly on the coast of Africa; and I may here add, that the increased mortality which took place whilst at Boà Vista is no longer a mystery; it was caused, I regret to say, by the most intemperate use of spirits I ever heard of. My informant told me that a bucketful of spirits had been offered to him. I do not mean to deny the possibility of this or any other fever becoming infectious under such circumstances as attended that in the *Eclair*, but there is not the *least proof* that it was so, while there are circumstances and proofs that inevitably lead to a contrary conclusion. But be this as it may, I have no hesitation in declaring my firm belief that the sick men of the *Eclair*, when that ship arrived at the Motherbank, might have been landed at Haslar Hospital and placed in the well-ventilated wards of the establishment, without the public health suffering in the smallest degree.

"It is a fact well known, and of the truth of which I can give the most satisfactory proof, that during the autumn of every year merchant-ships arrive in our harbours loaded with the produce of the coast of Africa, having perhaps lost great part, nay, in some instances, the whole, of their crew by the fever of the country, or some are still labouring under fever when the ship arrives in the Thames, and are sent to the hospital in that state, yet no instance is known of any infection have been produced by such procedure, in fact it is perfectly certain that it never did take place.

"That the fever of which two men of the *Growler* died in the hospital at Woolwich, was attended with some yellowness of skin, and ultimately that the matter vomited was of a dark colour, I have no hesitation in allowing; but that any circumstance took place, either in the *Growler* or in the hospital, that could lead to a supposition that the fever was occasioned by contagion or infection, I most emphatically deny. The two men who were attacked at Woolwich and died in the hospital, slept immediately over the scuttle of the forehold,

which, when the hold was disturbed, emitted a most unpleasant smell, which, when I examined the *Growler, was pointed out to me by her commander*. And I must also declare that the Superintendent-General of the Quarantine is most dedecidedly mistaken in assuming that there is any increase of heat in the deck of a steam-vessel where the men live, occasioned by the fires in the engine-room, which could maintain an artificial climate so as to foster aud bring the fever to England from the West Indies and coast of Africa. The fever did not arise *from infection*, but from marsh miasmata ; the *state of the ship's hold ;** the employment of the men in boat-service, in an atmosphere prejudicial to the human constitution ; and in the subsequent aggravation of these causes by excesses into which that part of the crew fell who had leave to go on shore. It is a well known fact, that vessels of war which have their cooking apparatus between decks, where the men live and sleep, such as flush-deck vessels, by which the temperature must be considerably raised, are uniformly the most healthy.

"When the *Growler* arrived at Boà Vista, after the purser of the *Eclair* had died, a survey was ordered upon her (the *Eclair*) purser's stores; a lieutenant, the paymaster, and purser, and the clerk of the *Growler* officiating. The crew of the *Eclair*, with the exception of a few Kroomen, and two whites, were all landed and living under tents, except some of the officers who were residing in town of Boà Vista, and therefore no intercourse with the three officers above mentioned took place. Yet the lieutenant, purser, and clerk were severely attacked; the purser, when actually on board the *Eclair*, showing distinctly that the disease was in the *ship herself*, as there were no persons on board to communicate it. Not a single person was taken ill in the *Growler*, in consequence, beyond the three mentioned.

"It appears to me that the present is the occasion which ought not to be neglected, in which the infectious or non-

* Which when examined was found to be perfectly clean.

infectious nature of the disease in question may be brought to a complete test and finally settled. It is perfectly well known that the communication between the inhabitants of Boà Vista, and both the *Eclair* and *Growler* was entirely unrestricted, indeed so much so that the late Commander Estcourt and the purser resided in the town. In short the parties mentioned visited and mixed together freely.

"If it can be *fully and satisfactorily shown that any person who had so visited the ship or tents where the sick were placed, contracted the fever in question and communicated it to others, and they to other persons in succession,* who had never visited the ships or sick, then there can be no reason to doubt the infectious nature of the disease ; but if nothing of this kind has taken place, then the conclusion must be that the disease is not infectious, and is therefore incapable of being communicated ; *in either case settling this long-contested question.*

"Having stated so strongly my opinion of the impossibility of the public health being endangered by the placing in the clean and well-ventilated wards of an hospital, patients labouring under the attacks of fever contracted on the coast of Africa, I must enter my solemn protest against the proposition the Superintendent-General makes, of keeping a ship under such unfortunate circumstances at sea, and by not permitting them to leave the coast of Africa or West Indies, till the season (November) has commenced, when in the usual course of things they must, with constitutions enervated in a high degree, encounter the cold and boisterous weather of the Channel.

"The fate of the *Eclair* has indeed been most lamentable, losing not only the captain and other officers, and likewise so many of her crew, but in addition to this no less than four medical officers.

"Supposing this ship had gone to the northward, as recommended by the communication under consideration, she would never have seen the *Growler*, and the places of those medical officers who died previously would not have been supplied.

The disease proceeds, and there is no hand to help them; what must have been the fate of the remainder of the crew? I shudder to think of it. If to give contentment to foreign nations there must needs be something more done, why not establish a Quarantine Department in the Scilly Islands under the charge of an active and intelligent medical officer of the navy? giving him the means of separating the sick from the healthy, and a comfortable hospital-ship to place the sick in.

"I am very sorry that circumstances have obliged me to touch on this *questio vexata* again, but entertaining the opinions I do, and knowing that they *are supported by nine tenths of the* PROFESSION, I could not without a gross dereliction of duty withhold them from the consideration of their lordships.

I have, &c.,

W. BURNETT."

This Report was forwarded to me with the following note:

The Hon. W. L. Bathurst to Sir W. Pym.

"Council Office, Whitehall,
November 28th, 1845.

"SIR,—I herewith inclose a report from Sir William Burnett to the Lords of the Admiralty, relative to the fever which prevailed on board the steamer *Eclair*. If you have any observations to make upon that report, or upon the difference of opinion which exists between you and Sir William Burnett, you will please to do so for the information of the Lords of her Majesty's Council, so that they may be communicated to the Lords of the Admiralty.

I am, &c.,

WM. L. BATHURST."

The Hon. W. L. Bathurst to the Secretary to the Admiralty.

"Council Office, Whitehall, Dec. 2d, 1845.

"SIR,—The Lords of Her Majesty's Council having called upon Sir William Pym to make such observations as he might think necessary with reference to the difference of opinion existing between himself and Sir William Burnett relative to the fever which lately prevailed on board the *Eclair* steamer, I am directed to inclose his letter on the subject, for the information of the Lords Commissioners of the Admiralty.

I am, &c.
(Signed) W. L. BATHURST."

Sir William Pym to Mr. Greville.

"Council Office, Whitehall, Nov. 25th, 1845.

"SIR,—I have to acknowledge the receipt of your letter, inclosing Sir William Burnett's report to the Admiralty, relative to my suggestion for men-of-war steamers terminating their period of service on the coast of Africa, so as to arrive in England during the cold season of the year, and requesting me, if I have any observations to make upon that report as to the difference of opinion between Sir William Burnett and myself, to do so for the information of the Lords of the Council, so that they may be communicated to the Lords Commissioners of the Admiralty.

"In reply I beg to state, for the information of the Lords of the Council, that Sir William Burnett and myself differ in opinion as to the nature of the disease which prevailed on board the *Eclair* steamer.

"In my opinion there are two distinct diseases prevalent on the coast of Africa—the one the remittent fever, from which our seamen suffer severely, in consequence of their employment in wooding, watering, and boat service, more particularly in the rivers. This is the same disease as the well-known Walcheren fever, the malaria fever of the Levant, and the jungle fever in India, and exists in all warm climates in moist and uncultivated grounds.

"Any person who has had this fever once, is more liable to a second attack, and those who recover from it suffer almost invariably afterwards from ague. This fever *is not infectious;* of course no danger can arise to the public health from vessels arriving in this country even when their crews are suffering from it. This is the fever which, in Sir William Burnett's opinion, prevailed on board the *Eclair*.

"The other disease is a very different one. It is in no way connected with malaria, or with unhealthy situations; it is unknown in the East Indies, and is peculiar to the west coast of Africa; it is highly infectious, and its infectious powers are *increased* by heat, and totally *destroyed* by cold; it is a fever *sui generis*, and known by the names of African, Bulam, yellow, and black-vomit fever, the *vomito prieto* of the Spaniards, from its being attended with the peculiar symptoms in fatal cases of vomiting of a black or brown matter resembling coffee-grounds, a symptom which does not exist in the remittent fever; and another distinguishing particular is, that in this fever patients, after an attack of it, never suffer from ague or visceral disease, as in the remitting fever.

"This fever has also a singular and peculiar character—namely, that, like smallpox, measles, &c. it attacks the human frame but once. It also differs from the remittent fever in being highly infectious. It has, in consequence, more than once been imported into the island of Ascension, very often into different West India islands, so late as 1843 into the Bermudas, and occasionally to different ports of Spain, particularly Cadiz and Gibraltar.

"Having, I trust, proved the existence of two distinct diseases, viz. the remittent fever and the black-vomit fever, I shall, with great reluctance, make a few observations upon some points in Sir William Burnett's Report.

"First, as to his cause of fever on board the *Eclair*, viz. marsh miasmata, on the coast of Africa, irregularities on the

part of the seamen, excess in the use of spirituous liquors, and the foul state of the hold of that vessel. I shall first state that the hold of the *Eclair*, when examined at Boà Vista, was found to be clean;* next, that Surgeon Bernard, who embarked at Madeira, the pilot who embarked at Portsmouth, and Assistant-Surgeon Rogers at Sheerness, who were not exposed to any of those supposed causes, were all attacked by the fever, and the first two died of it. Sir W. Burnett supposes that a free communication was kept up between the crews of the steamers and population of Boà Vista; but it ought to be known, that the crew of the *Eclair*, including the sick, were landed on a small island, with the view of preventing communication. The officers, no doubt, who landed in good health, were lodged in town, but the inhabitants were evidently aware of their danger, as the Governor-General, staff, and all the employées, escaped to the Island of Brava, from their apprehension of the disease, and the governors of Goree and Madeira prevented communication at both places.

Another proof of there being no cause existing in the *Eclair* for the production of the disease is, that the fever raged with redoubled fury amongst the crew when on shore at Boà Vista, thirty-one individuals belonging to the *Eclair* having died in the course of three weeks. Sir William Burnett disapproves strongly of men-of-war, when the crews are suffering from this fever, being ordered to a northern latitude with the view of putting a stop to it. I can only say in reply, that it is a general practice on the Jamaica station, and invariably attended with success.

"Sir William Burnett states, that of four officers from the *Growler*, sent to survey the purser's stores on board the *Eclair*, three of them—the lieutenant, purser, and clerk—were attacked in consequence, and no other individual in the

* This is stated by Sir W. Burnett himself in his letter (Parl. Papers) to the Secretary of the Admiralty, dated 29th October.

Growler; but in this he is mistaken, for by the sick report which I received from the surgeon of the *Growler* when she was under observation at Woolwich, it appears that—

1	was attacked, the lieutenant,	on the	7th	September
1	,,	purser, on the	11th	,,
1	,,	clerk, on the	12th	,,
2	,,	on the	14th	,,
2	,,	on the	17th	,,
1	,,	on the	25th	,,
2	,,	on the	9th	October
1	,,	on the	11th	,,
2	,,	at Woolwich.		

In all thirteen, and two of the last three cases died at Woolwich with all the symptoms of the disease.

"From the circumstance of the very first cases of black-vomit fever, ever imported to the shores of this country, having been brought in two steamers, from the coast of Africa within a few days of each other; and from being aware of the danger which might possibly accrue to the public health, from the disease being brought to this country, together with the well-known ruinous consequences to the commercial interests of England, in the event of a vessel arriving with an infected crew, I cannot help persevering, in strongly recommending the adoption of some regulations to prevent men-of-war steamers arriving in this country during *the summer months,* more particularly with a sickly crew; and if this last case should occur during the voyage, the officer in command should have instructions to leave off steam and have recourse to sails, steering for a cool latitude, which always puts an end to the disease. It may not be necessary that the periods of service of steamers on the coast of Africa, should terminate on the 1st of November, but in my opinion they ought to arrive in this country between that date and the 1st of March.

I have, &c.

(Signed) W. PYM."

When this correspondence relative to the *Eclair* commenced, I found Sir W. Burnett very much inclined to stir up an *old controversy*, upon the subject of Yellow Fever, which I had long forgotten, and was very averse to its being renewed, more particularly as expressions were used by him, which, in my opinion, were unbecoming, in a correspondence passing through two departments of the Government; I, therefore, when an opportunity offered, wrote a familiar and friendly note to him, mentioning that it was rather singular that at this time of day, he and I should be brought into collision upon the subject, and that I was determined, in as far as I was concerned, that the suit should be an amicable one.

Sir William replied in the same tone, but very soon forgot his amicable promise, and as the sending a naval medical officer to Boà Vista for the purpose of inquiring into the nature of the fever, was under the consideration of the Government, he sounded me as to my wish of sending a military medical at the same time; this, however, when submitted to me by the Lord President of the Council, I declined, stating that two officers going out might differ in opinion, and if so, that of course nothing would be gained; he further stated that he had fixed upon Dr. M'William who was the principal medical officer with the Niger expedition, and that he was sure he could rely upon his impartiality. And "if the intended inquiry should prove that he was wrong, that he would most readily acknowledge it;" but he could not keep quiet; the non-contagious remission was short; the exacerbation returned, and he stated in his next official letter that all my statements as to the *peculiarities* of the Bulam Fever were *gratuitous assumptions* on my part, and had *no foundation on fact.*

He next said, "after tracing the sickness in the *Eclair* from its commencement to its final termination," that he had shown in a manner which neither *sophistry*, NOR BOLD BUT UNFOUNDED ASSERTIONS could overturn, that it arose from marsh miasmata, &c., &c.

I have thought it right to give this explanation to show how averse I was to take up the gauntlet, and which I found myself at last compelled to do, in consequence of the wanton, false, abusive, and unfounded attack made upon me by him (at pp. 192-3, African Report,) relative to the crew of the *Eclair* as connected with the quarantine arrangements; and although the Report is considered a joint one by Sir W. Burnett and Dr. Bryson, I must give Sir William, on account of *his daily assistance and advice* during the time of its being drawn up, the full credit for the insertion of this misplaced and uncalled for document.

Sir William Burnett to the Secretary to the Admiralty.

"Admiralty, December 11, 1845.

"SIR,—In conformity with their Lordships' directions that I should furnish them with my observations on the second report of Sir William Pym, relative to the fever which so lately and so fatally prevailed on board Her Majesty's ship *Eclair*, and transmitted by the directions of the Lord President of the Council, to the Lords Commissioners of the Admiralty; I beg to submit the following, premising, however, that I mean as far as possible to confine my observations to the case of the *Eclair*, as I can see no benefit which could be derived from entering generally upon the consideration of the subject of yellow fever, which would indeed be a most extensive one and occupy much time; and the more especially as I have already done so in my work on the Fever of the Mediterranean, published in 1816.*

"Sir William Pym very justly states that he differs with me as to the nature of the fever which prevailed on board the *Eclair*; he considering it 'a fever *sui generis*, known by the name of the African, Bulam, yellow, or black-vomit fever, from its being attended in its fatal cases with the peculiar symptom of black or brown matter resembling coffee-grounds,

* Sir W. Burnett still in a state of delusion as to the marsh fever of Minorca and Malta being the same disease as the vomito-negro.

a symptom which does not exist in the remitting fever; and another distinguishing particular is, that in this fever, patients after an attack of it never suffer from ague as in the remitting fever. That the fever has also a singular and peculiar character, viz. that, like smallpox, measles, &c., it attacks the human frame but once. That it also differs from the remittent fever in being highly infectious, and has in consequence more than once been imported into the island of Ascension, very often into different West India islands, so late as 1843 into the Bermudas, and occasionally into the ports of Spain, particularly Cadiz and Gibraltar.'

"The whole of this as regards the peculiar properties of the disease called by Sir William Pym, Bulam, &c., *is a gratuitous assumption on his part*, and, in my opinion, has no foundation in fact; and in my view of this part of the subject I am supported by the testimonies of *nineteen twentieths** of the medical officers of both services, who are of opinion with myself, that the *more ardent form of yellow fever* is a mere *modification* of the *bilious remittent* so extensively known over all the tropical regions, and hence can have no infectious properties unless under such circumstances as I have stated in my former report, viz., an accumulation of sick in a crowded and ill-ventilated space, such as must have been the case in the *Eclair*. I only suppose that this must have been the case in the *Eclair*; I have no proof that it was so.

"But without at present following Sir Willian Pym further in his report, I proceed to prove that the fever which prevailed in the *Eclair* was unquestionably a remittent fever, originating in marsh miasmata, and the exposure of the men in boats during rainy weather, and continued by subsequent irregularities in Sierra Leone, and greatly increased by the same cause (the drinking of ardent spirits) at Boà Vista; which will I presume finally put the question at rest.

"The *Eclair* left England for the coast of Africa in the

* This is a gratuitous assumption!

beginning of the month of November 1844, and appears to have reached Ascension by the 1st of December, and was again at sea on the 8th, and on the 20th was in the river Gaboon. From this time the *Eclair* proceeded along the coast, anchoring for a short time at different places on the coast, and arrived off the Gallinas on the 13th of January, 1845, continued cruising or anchoring on the coast, and on the 25th came to Seabar; weighed, and on the 27th again anchored off Seabar, sending away all the boats manned and armed in the morning, they returning to the ship in the evening. Nothing of any moment occurred after this during the early part of February, and the ship appears to have anchored at Sierra Leone on the 23d, continuing there till the 28th; and on the 2d of March the *Eclair* resumed her station off Seabar; during the remainder of February, all the month of March, and until the 18th of April, the ship continued perfectly healthy; a few cases of diarrhœa, and some other nnimportant and common complaints, being the only ones on the sick list.

"On the day above mentioned (18th of April), three men, all of whom had been away in the boats, were placed on the sick list with remittent fever; one of them died on the fifth day of his illness, and two on the sixth day.

"On the 20th, another who had been in the boats was placed on the list with remittent fever, and after being forty-six days on the list recovered.

"The ship continued to move about the coast, and from this time until the 22d of May there was no other case of fever.

"On the 22d, three more men were placed on the list with remittent fever, who had been on boat-service, one of whom died on the thirteenth day, one on the seventh, and one on the fifth.

"On the 25th, another seaman, who had been on boat-service, was put on the list with remittent fever, and died on the ninth day of his illness.

"Some deserters were found in the river in a boat labouring under remittent fever, and were discharged on the 3d of July for a passage to Ascension.

"On the 29th, a boy was put on the list, and discharged on the 8th to duty; his disease was classed *febris remittens simplex*.

"On the 4th of June, another boy who had been on boat-service, was placed on the list with remittent fever, and died on the third day.

"On the 5th, a marine, who had also been on boat-service, was added to the list with remittent fever, and died on the sixth day of his illness.

"On the 8th, Mr. C. Hall, the clerk, was placed on the list with *continued fever*, and died on the eighth day.

"From this time the disease appears to have ceased on board, the ship still continuing on the coast in nearly the same position, and on the 4th of July the *Eclair* anchored off Sierra Leone.

(This is Sir W. Burnett's own history of the remittent fever up to the 5th of June, when it appears to be completely at end.)

"While the ship was in this harbour the crew, amongst other things were employed in cleaning the hold of the *Albert*, which the late surgeon, Mr. Maconchy, reports to have been in a most filthy state; and where they also unfortunately had the opportunity of indulging to a great extent in intoxicating liquor of the worst kind; added to which, leave was given to the men to go on shore, where the same scenes followed in (if possible) an increased degree, and where many remained on shore all night in a shocking *state of intoxication*, and were afterwards brought on board by the police.

"The consequences of these irregularities soon manifested themselves.

"On the 19th of July, the fever again made its appearance,

still being of the remittent type, in the person of a seaman who had been on shore on leave, and he died on the eighth day of his illness.

"On the 21st, a seaman was sent with the same disease to the military hospital; this was his second attack. On the 22d and 23d, two more who had been three or four nights on shore came on the list, and died on the fifth day of their illness.

"On the 23d, the ship proceeded to sea with the *Albert* in tow, and anchored on the coast on the 8th of August, the men of the *Eclair* still employed in the vessel.

"On the 29th, the next cases of remittent fever occurred in two seamen; these had been two nights and one day on shore in Sierra Leone, and one died on the ninth day of his illness, and the other on the nineteenth.

"On the 31st, a third seaman who had been the companion of the two preceding ones, was attacked by remittent fever, and died on the sixth day of his illness.

"On the 1st of August, there were two cases of remittent fever, which recovered after an illness of from twelve to eighteen days; both these persons had been employed in the *Albert*.

"On the 2d, two more cases of remittent fever occurred, one died on the second day, and one on the fifth. One of these had been in the *Albert*, and the other on shore at Sierra Leone.

"On the 8th and 9th, four were added to the list with remittent fever, two of whom recovered, and two died on the sixth day of attack.

"On the 10th, the *Eclair* arrived in the Gambia with the *Albert*, where the former remained thirty hours to coal.

"On the 15th, they were at Goree, and one case was put on the list with remittent fever, and died on the thirteenth day of the attack, having got very wet two days before.

"On the 18th, a seaman was added to the list with the same disease, and died after ten days' illness.

"On the 21st, the *Eclair* anchored at Boà Vista, having then only five cases on the list with remittent fever, all of a serious nature.

"On the 24th and 25th, four were added to the list with remittent fever; of these one died on the fourth day, and one on the sixth, both being stokers. Two recovered after being on the list eighteen days.

"On the 27th, one case put on the list with remittent fever, and died on the fifth day.

"The officers and crew of the *Eclair* were landed on a small island, contiguous to Boà Vista, on which there was an old fort, in which the sick were placed on the 31st, and the remainder *under canvas;* and I have reason to believe that the officers lodged in the town of Boà Vista. The thermometer averaged 86° daily.

"It is with great regret I have now to state, on the best information, that while in this situation, means were found to supply the sick as well as the others with enormous quantities of ardent spirits, which were drunk with avidity, and produced the most deleterious effects; indeed, I have reason to believe that some were absolutely killed by it, as if by poison. Had there not been a fever already in existence, the intense heat (86° of Fahrenheit), the nature of the soil, and this dreadful intoxication together, would have been fully sufficient to have produced it, and one of the worst kind, too, in which irritability of stomach *and dark-coloured vomiting* would have been conspicuous symptoms.

"The dates heretofore given have shown the progress of the malady from its first commencement in April to the arrival at Boà Vista on the 21st August, and up to the landing of the sick and ship's company, which took place on the 31st. In viewing the progress of the disease, their Lordships will not fail to remark that the fever *had ceased from the 8th* June till the 19th July, when the disease *returned with renewed vigour*, in consequence of the before-mentioned transactions at Sierra Leone, where also inebriation was carried on

to a fearful extent, and was followed by the most deplorable consequences.

"From the foregoing statements it results, that between the 3d April and the 8th June, there were seventeen attacks of remittent fever and ten deaths, all of the latter, except one, having been *employed in the boats;* that one exception was a stoker. From the 19th July to the 21st August, when the *Eclair* arrived at Boà Vista, there were twenty attacks and thirteen deaths; making in all, up to this time, thirty-seven attacks, and twenty-three deaths, and covering a period of 150 days. This loss was indeed lamentable, but it is comparatively nothing to what followed the landing at Boà Vista, and the shocking *scenes of drunkenness which took place.* In the short space of thirty-seven days, that is, from the period the *Eclair* anchored at Boà Vista on the 21st August, till the arrival at the Motherbank on the 28th September, there were no less than ninety attacks and forty-five deaths.

"Having thus traced the sickness which took place in the *Eclair,* from its commencement to nearly its final termination, and shown, in a manner which neither *sophistry* nor *bold* but *unfounded assertions* can overturn, that it undoubtedly arose in the first place from marsh miasmata, and in people employed in the boats; I must now observe to their Lordships, as Sir William Pym has *asserted that it was not a remittent fever,** that this term *remittent is applied through the whole course of the disease,* by the late surgeon, Mr. Maconchy, by his assistant, Dr. Hartmann, by the late Mr. Bernard, and finally by Dr. Stewart; and further, that the notes kept of the disease (some of which I have examined myself, and others have been examined by Drs. Stewart and Bryson) distinctly affirm this.

* On the contrary; Sir W. Pym has declared that the first fever, which existed between the 3d of April and the 5th of June, was the regular remittent, and that a *new fever,* the Bulam or vomito-negro, was *contracted at Sierra Leone,* and commenced on the 27th of July, forty-seven days after the cessation of the remittent.

" Having thus proved the origin, nature, and causes of the disease to be entirely different from that assumed by Sir W. Pym, I need scarcely proceed further, and there is not one word of my report of the 21st ult. which it is necessary for me to change.

" With respect to the importation of the disease into various places, (except in one instance, and that even is surrounded with doubts,) I mean that of Her Majesty's sloop *Bann*, I entirely disbelieve it. Before concluding, I trust their Lordships will pardon me if I again most respectfully urge that my former request be adopted, of sending a competent person to examine and inquire whether any disease of a similar nature traceable to the *Eclair* prevailed in that country subsequent to the departure of that ship from Boà Vista.

(Signed) W. BURNETT."

With reference to this last paragraph (importation of the disease), Sir William Burnett, in his Report to the Lords of the Admiralty (1824), stated that, *without doubt*, the disease was contagious, and had been imported to the island of Ascension by the *Bann* sloop-of-war. Now, however, he doubts his own statement; and as to the importation into the Bermudas, I shall here give an extract of an official letter from the Governor (Colonel Reed) to the Colonial Secretary in Downing-street, dated 17th November, 1843:

" Without entering upon the controversy of contagion or non-contagion in yellow fever, I shall now merely repeat my belief that the disease we have here, is capable of reproducing itself by infection from persons lying ill, or from houses in which they have recently been ill. Almost every person employed as a nurse in the public hospitals caught the fever; and a similar consequence resulted in private houses where the disease had once entered.

"The inhabitants are acquainted with only two similar fevers to the present one occurring in the Bermudas; the first in 1796, and the other in 1818, extending to 1819, its

course being scarcely suspended during the winter between those two years."

On account, as I have stated before, of my disapproving of the appearance of anything like controversy in the correspondence which had to pass through the Council Office and Admiralty, I did not reply so fully as I could have wished, with the view of counteracting and disproving the opinions, statements, and assertions of Sir W. Burnett in his letters of the 21st of November and 11th of December; I shall now undertake this task, beginning with the first paragraph in the letter of the 21st November. He says:

I. "It is perfectly evident from the history of the *Eclair*, and her proceedings on the coast, that the fever in question arose from causes totally distinct from infection, that it was in fact the usual remittent fever of the coast, *produced originally* by the influence of marsh miasmata, *heightened* by the exposure of the men in boats when absent from the ship for many days together, to *miasmatic influence*, and to the *subsequent irregularities which the men committed at Sierra Leone*, when they unfortunately obtained leave to go on shore, and where great excesses were committed, which combination of causes has never yet failed to produce a fearful increase of febrile disease particularly on the coast of Africa."

I agree in opinion with Sir W. Burnett, that the *first* fever in the *Eclair* was *originally* produced by the influence of marsh miasmata, and that it was the *remittent fever*, I have never denied; but it is rather Irish to say that it was *originally* produced by miasmatic influence at Sherbro, and by the *subsequent irregularities* at Sierra Leone.

This first fever had altogether ceased, for at least a month before the arrival of the *Eclair* at Sierra Leone, so that if there were any irregularities committed there, those *subsequent* irregularities could have had nothing to do with the production or aggravation of this *first*, or *remittent* fever, which had *commenced four months* before, viz. on the 3d of April, and

terminated one month, the 5th of June, before the arrival of the ship at Sierra Leone on the 5th of July, and where she remained without a case of fever until the 22d or 23d of this last month.

Sir William Burnett's next assertion is:

II. "That the increased mortality which took place whilst at Boà Vista is no longer a mystery; *it was caused, I regret to say, by the most intemperate use of spirits* I ever heard of. My informant told me that a bucketful of spirits had been offered to him."

To ascertain the truth of this statement as to the *shocking state of intoxication* particularly at Boà Vista, which I considered so very unlikely to have occurred under any naval officer, and more particularly under one of the high character of Captain Estcourt; I wrote to Captain Harston who was first Lieutenant of the *Eclair* when at Boà Vista. His reply was:

"There is *no foundation for the alleged drunkenness and debauchery;* that spirits were offered to the Portuguese, I have very little doubt, as in all places they are sought for and purchased by the seamen. In proof that no drunkenness existed, the nurses (and every man in turn was one, who was not ill) were always at their duty, and constantly visited by Captain Estcourt and myself, and also by Lieutenant Isaacson who was stationed in the fort; and I never but once received a report from him that any of the men were intoxicated, and on that occasion it arose from a mistake in the person serving out the evening allowance of spirits, giving to one or two men an extra allowance, they having been served beforehand unknown to him. (Signed) H. C. HARSTON.

February 16, 1848."

This statement is better authority than that of Sir W. Burnett's informant, who probably partook of a portion of the bucketful; and in confirmation of I may say the impossibility that any such scenes of drunkenness could have

been carried on, I give the following extract of a letter from Captain Buckle, the senior officer at the time, at Boà Vista to the Secretary to the Admiralty:

"I trust their Lordships will excuse my availing myself of this occasion to state that I could not but remark the zealous and unremitting attention the late Commander Estcourt was in the constant habit of paying to his various duties, and which I had frequent opportunities of observing, both at Gallinas, where he was attached to the division under my orders, and at Boà Vista, where he passed several hours every day endeavouring to cheer the sick by his presence among them. But it was very evident that this and the various other duties of the ship, especially after he had neither purser nor clerk to assist him, that his strength was diminishing, though his cheerfulness and activity were unabated.

"I am also desirous of being permitted to give my testimony to the steady, active, and praiseworthy exertions of the officers of the *Eclair,* in doing all in their power to forward the service. Lieutenant, now acting commander, Harston remained on board the ship, with the Kroomen, to direct the clearing and cleaning the holds, fumigating, whitewashing, &c.; but was eventually disabled from continuing his exertions for a time, by a slight attack of fever. Commander Estcourt also most highly recommended the devoted exertions of Lieutenant Isaacson, who volunteered to live entirely among the sick in the fort at Boà Vista, and was of the greatest assistance to the medical officers, as well as to the sick, both by night and day, among scenes of extreme suffering. I must add that Commander Estcourt frequently observed that nothing could exceed the zeal and exertions of Mr. Maconchy, whose health has at length given way under the great anxiety and over-exertion which had long been weighing him down."

And in proof of all this, I beg to refer to the strong expressions in the last paragraph of Mr. Macaulay's letter, (p. 170.)

Sir W. Burnett proceeds:

III. "I do not mean to deny the possibility of this or any other fever becoming infectious under such circumstances as attended that in the *Eclair*, but there *is not the least proof that it was so,* while there are circumstances and proofs that inevitably lead to a contrary conclusion."

Sir W. Burnett made this statement before Dr. M'William's Report had been received; but he was quite aware, as he states in his letter of 11th December (p. 193), that the disease had ceased when the ship remained off Sherbro on the 8th June; and that, on the 19th of July (which he states in the same letter,) "the fever again made its appearance, *still being of the remittent type,*"* (of this, however, I have more than doubt); he was aware that the first cases that occurred after the *Eclair* sailed from Sierra Leone (six, I believe, in number), had died with the vomito-negro symptom, the very first cases in which it had been mentioned from the time of the *Eclair's* arrival on the coast.

He was aware of the death of the captain and three medical men, and about fifty-five seamen, after the ship left Sierra Leone; he was aware of the death of Lieut. Isaacson, Mr. Bernard the surgeon, who embarked at Madeira, and of the pilot who embarked at the Isle of Wight,—all this is a tolerably good proof of contagion! He surely does not mean to say that the captain, and the lieutenant, and four medical men, all died from the shocking scenes of drunkenness at Sierra Leone.

* Since writing the above, I have had the opportunity of inspecting, at the Admiralty, the original journals of the cases of fever in the *Eclair*, after her departure from Sierra Leone, more particularly those of the officers who died; and, however unpleasant it may be to contradict *this assertion* of Sir William Burnett, I must declare that there never was a record of more decidedly marked cases of *Bulam* or *black-vomit* fever, and without any *remissions* or *exacerbations*, nor in my search could I find any mention of *remittent fever*.—W. Pym.

Sir William does not give the circumstances and proofs which (he says) lead to conclusions against contagion. He next says:

IV. "It is a fact well known, and of the truth of which I can give the most satisfactory proof, that during the autumn of every year merchant-ships arrive in our harbours loaded with the produce of the coast of Africa, having perhaps lost great part, nay in some instances the whole, of their crew by *the fever of the country,* or some are still *labouring under fever* when the *ship arrives in the Thames,* and are sent to the hospital in that state, yet no instance is known of any infection having been produced by such procedure; in fact, it is perfectly certain that it never did take place."

It is very easy making such assertions; no doubt ships arrive sometimes from the coast of Africa, whose crews have suffered severely from the coast or remittent fever; they arrive occasionally also from New Orleans, having suffered from the same disease; but Sir W. Burnett ought to have known, that all vessels so arriving with a sickly crew, or whose crews have been sickly during the voyage, pass *through my ordeal;* they are all reported to the Council Office through the Customs, and the ships' papers examined by me; but knowing the existence of two distinct fevers on the coast (which Sir William does not), I never detain any ship, even if she has sick on board with remittent fever (which is *never* originally infectious), and what is more, I assert, *never becomes so,* from any cause whatsoever!!

If a crowded state of persons under remittent fever could render that disease infectious, why did it not become so in the steamer upon the Niger expedition, when every individual in the vessel was laid prostrate, excepting the surgeon and the botanist, the one acting as steersman and the other as engineer.

Sir W. Burnett next comes to the *Growler* steamer, which arrived in England two days after the *Eclair.* He says:

V. "That the fever of which two men of the *Growler* died in the hospital at Woolwich, was attended with some yellowness of skin, and ultimately that the matter vomited was of a dark colour, I have no hesitation in allowing; but that any circumstance took place, either in the *Growler* or in the hospital, that could lead to a supposition that the fever was occasioned by contagion or infection, *I most emphatically deny.*

"The two men who were attacked at Woolwich and died in the hospital *slept immediately over the scuttle of the forehold,* which, when the hold *was disturbed, emitted a most unpleasant smell,* which, when I examined the *Growler,* was pointed out to me by her commander."

With respect to the *Growler,* my knowledge of her amounts to this:—I received a note from Sir William Burnett, dated 7 p.m., stating that in consequence of his having received a letter from Woolwich, informing him, that of two cases in hospital from the *Growler,* one had died under *suspicious symptoms,* that he had immediately proceeded there and examined the patient. His words are:—"I must say, that it appeared to me a case of a very *suspicious* character, and likely to die." He wished me to meet him at the Admiralty next morning at half-past ten, but I thought it better to proceed early in the morning to Woolwich direct, when I found both men dead; their bodies were yellow, and they had both had vomiting of coffee-grounds looking stuff. I recommended opening, airing, &c., and immersing every article of clothing and bedding in water. I then proceeded to the dockyard, where the *Growler* was alongside the wharf. I had a conversation with the captain-superintendent, who immediately came into my views, and without creating alarm, the steamer was hauled a short way from the wharf, the crew were for a few days not permitted to land; all on board continued in good health; the two men who died were decided cases of yellow fever. It was rather singular that the disease should

have remained dormant in the system so long, the crew not having communicated with the *Eclair* after the 21st or 22d of September, about a month before; the *weather* was fortunately *cool*, which prevented any spread of the disease. The effluvia from the hold could not have occasioned the fever in the two men; if it had, they would not have been the only sufferers. This was certainly the opinion of Captain Buckle, commanding the ship: I wrote to him on the subject: he replied to me in a short letter.

He said—"Connected with the death of the man and boy belonging to the *Growler*, the man was in the carpenter's crew; the boy was employed in the clerk's office, close to the cabin; but neither of them ever worked in the hold, nor did they sleep immediately over the scuttle of the fore-hold, *as stated by* Sir William Burnett in his official Report. I suppose Sir William meant over the fore-hatchway, as there was no scuttle or any opening into the fore-hold but the hatchway. The place where the man and boy slept was reported to me to have been abreast of the fore-hatchway, although I àm not sure that they were the nearest to it; but they would, in such a position, have been nearer the fresh air from above.

"When the *Growler* arrived at Boà Vista, after the purser of the *Eclair* had died, a survey was ordered upon her (the *Eclair*) purser's stores—a lieutenant, the paymaster and purser, and the clerk of the *Growler* officiating. The crew of the *Eclair*, with the exception of a few Kroomen and two whites, were all landed and living under tents, except some of the officers, who were residing in the town of Boà Vista, and therefore no intercourse with the three officers above mentioned took place. Yet the lieutenant, purser, and clerk were severely attacked; the purser, when actually on board the *Eclair*, showing distinctly that the disease was *in the ship herself*, as there were no persons on board to communicate it."

That the three officers, after having been upon survey on board the *Eclair*, were attacked with fever, there can be no doubt; and from there being no sick person on board at the time, it must be acknowledged that the disease (that is, the contagion, or infection) was in the ship herself.

It must therefore be asked, how came it there?

It is known, from the history of the *Eclair*, that none of her crew suffered from fever, from the time of her arrival on the African station, excepting the men employed on boat service when stationed off Sherbro, and that they were the only sufferers.

Their disease was the remittent fever, well known to be non-contagious; and a very good proof of this is, that it was not communicated to the sailors who remained on board.

It is clear, therefore, that there was no fever in the ship up to the 5th of June, the date of the last case of this remittent fever.

It is equally clear that there was no disease in the ship from this date (the 5th of June) up to the 23d of July, the crew having, during this intermediate period, continued healthy.

And here commences a new *era* in the history of the crew of the *Eclair*. Captain Estcourt, in his letter to the Commodore, dated Boà Vista, 8th September, 1845, says:

"We left Sierra Leone the 23d July, with *one case of fever*, the remainder of the crew quite healthy to all appearance; but before reaching Bathurst, on the 10th August, we had lost seven men from fever, besides a gentleman of Sierra Leone (Mr. Dawson), to whom I had given a passage. At Goree one man died, and we were in consequence refused pratique; and on our way here three more died."

This one case of fever, it is known, died with black vomit,

the very first instance of this symptom having appeared on board the ship. Mr. Dawson, the passenger, was the next case. He went on board ill on the 23d of July, the day of sailing, and died on the 27th, the fourth day after his being attacked, and with the same *black-vomit* symptom. Three men, who had slept on shore, were next attacked, and all three died. "From this time the disease spread rapidly; and before the 18th of August we had lost ten men."

Capt. Estcourt, in his letter to the Secretary to the Admiralty, dated Boà Vista, 11th September, says:

"Having been refused pratique at Goree, I left on the 17th August, and arrived here the 20th.

"Five men died in the next ten days; I then landed the whole ship's company in a small fort on a detached island which forms the harbour, and whieh fort the Governor-General most hospitably placed at my disposal.

"The men landed here on the 31st ultimo, and we have since lost twenty-eight men, making thirty-nine deaths since leaving Sierra Leone."

What becomes of all Sir W. Burnett's causes? Here there was no crowding of the sick; the first six persons attacked having died from this new vomito-negro fever; these was no influence of marsh miasmata—no exposure in boats—no *shocking drunkenness*, if Capt. Harston is to be believed.

Now, to account for the disease being in the ship itself—

Suppose the disease, which commenced at Sierra Leone, had been scarlet fever, and that there had been only one fourth of the number of persons suffering from this last disease which had suffered from the vomito-negro fever—and that the whole of the crew had been landed, as was the case with that of the *Eclair*—and that any number of persons had gone on board the empty ship (who had not before passed the ordeal of scarlet fever)—would they not, to an equal certainty, have

been attacked with scarlet fever. Every schoolboy knows the consequences of this disease in an infected house in England. But to come to positive proof. It is now known as a positive fact, that the black-vomit fever existed at Boà Vista when the *Eclair* was there—that Mr. Dawson was actually attacked by the disease *before* he went on board, and died the fourth day of his illness with black-vomit—and that the men who remained on shore became infected, in consequence of communication with persons suffering from it, and communicated the disease to their comrades, and ultimately to the whole crew.

The following extract (p. 230, African Report) may throw some light on the subject:

"For several years the hull of the *Conflict* gun-brig, roofed over, was moored off the town of Sierra Leone, and appropriated for the reception of prize crews and other portions of the force, whether intentionally or accidentally detached; but great difficulty was found in restraining the men from going on shore, while, from the want of a sufficient number of responsible officers, many irregularities occurred on board. The vessel at the same time appeared to have acquired, within herself, the power of generating disease; the same was observed to have occurred to the *Magnificent*, moored in the harbour of Port Royal, in Jamaica; and it is believed to the *Serapis* before her."

Is not the above a very good proof of the atmosphere of the ship becoming infected, in consequence of a number of persons suffering from this infectious fever having been on board of her, and retaining the power of communicating the same disease (more particularly in a warm climate) to persons going on board of her?

Dr. Aitken, the colonial surgeon, having stated to me, by letter, "that the yellow or Bulam fever prevailed at Sierra Leone in the year 1845 (to a limited extent). The *Eclair*

was then in harbour, as far as I can recollect. There was at that time three decided cases of black vomit—Mr. Pringle, a merchant's clerk, and an American Captain (Babbage,) died in lodgings, where several naval officers resided. The third case was a seaman, who died in the military hospital."

From this statement there can be no doubt that the disease (the infection) was in the ship herself, and the manner in which it was introduced very satisfactorily accounted for. An instance of the same kind is mentioned (p. 131) where Dr. M'Kechnie went on board the *Black Joke* tender for a few minutes only, when he was infected, and the disease appeared after six days of incubation; and Sir W. Burnett himself, in his letter to the Secretary to the Admiralty, of 7th October, states his apprehension of this disease remaining in the *Eclair* and the infection attaching itself even to the sails, after being released from quarantine; as he suggests that as soon as the "*Eclair* is admitted to pratique all the *sails and stores* should be removed into a hulk, hung up and exposed to the air for *at least ten days,* and the sails beaten with a stick."

So that after I had released her as a clean and healthy ship, he again places her in quarantine for ten days.

VI. "It appears to me that the present is the occasion which ought not to be neglected, in which the infectious or non-infectious nature of the disease in question may be brought to a complete test and finally settled.

"If it can be fully and satisfactorily shown that any person who had so visited the ship or tents where the sick were placed, contracted the fever in question and communicated it to others, and they to other persons in succession, who had never visited the ships or sick, then there can be no reason to doubt the infectious nature of the disease; but if nothing of this kind has taken place, then the conclusion must be, that the disease is not infectious, and is therefore incapable

of being communicated; in either case settling this long contested question."

This has been most satisfactorily settled. Dr. M'William was selected by Sir W. Burnett, and sent to Boà Vista, who, in his Report, came to the following conclusions.

"1st. *That the island was quite healthy when the Eclair arrived there.*

"2d. That the fever was propagated throughout the island almost exclusively by direct intercourse with the sick.

"3d. That the disease of which the Portuguese soldiers died at the Fort (Duke of Braganza) on the small island, was that which afterwards ravaged Boà Vista, and the same as that which prevailed among the crew of the *Eclair*.

"4. That connecting the whole of the circumstances attending the arrival and stay of the *Eclair* at Boà Vista with those under which the disease appeared on the small island, and afterwards on Boà Vista itself, *leaves no doubt of its having been introduced by the Eclair.*"

Sir W. Burnett, in presenting the Report to the Lords of the Admiralty, says:

"Dr. M'William appears to have taken considerable pains to gain information; but after a careful perusal of the papers he has sent, I am compelled to say, that I cannot conscientiously arrive at the conclusion the doctor has done, viz., 'That the fever was occasioned by the intercourse with the *Eclair*.'"

Sir William Burnett keeps up his spirit of opposition to the last; he says:

VII. "Having stated so strongly my opinion of the impossibility of the public health being endangered by the placing

in the clean and well-ventilated wards of an hospital, patients labouring under the attacks of fever, contracted on the coast of Africa, I must enter my solemn protest against the proposition the Superintendent-General makes of keeping a ship under such unfortunate circumstances at sea, and by not permitting them to leave the coast of Africa or West Indies till the season (November) has commenced, when in the usual course of things they must, with constitutions enervated in a high degree, encounter the cold and boisterous weather of the channel."

My reply to this was:

"From *the circumstance of the very first cases of black-vomit fever ever imported to the shores of this country* having been brought *in two steamers* from the coast of Africa within a few days of each other, and from being aware of the danger which might possibly accrue to the public health from the disease being brought to this country, together with the well-known ruinous consequences to the commercial interest of England, in the event of a vessel arriving with an infected crew, I cannot help persevering in strongly recommending the adoption of some regulations to prevent men-of-war steamers arriving in this country during the summer months, *more particularly, with a sickly crew;* and if this last case should occur during the voyage, the officer in command should have instructions to leave off steam, and have recourse to sails, steering for a cool latitude, which always puts an end to the disease. It may not be necessary that the periods of service of steamers on the coast of Africa, should terminate on the 1st of November, but in my opinion, they ought to arrive in this country between that date and the 1st of March."

But it is unnecessary to say more upon this subject; the thing is already half done, the Lords of the Admiralty having ordered one ship home from the African station every month, summer and winter.

The next paragraph is *a very affecting one:*

"Supposing this ship had gone to the *northward*, as recommended by the communication under consideration, she would never have seen the *Growler*, and the places of those medical officers who died previously, would not have been supplied. The disease proceeds, and there is no hand to help them; what must have been the fate of the remainder of the crew? I shudder to think of it."

So that Sir William Burnett will have a shudder every month during the winter, in consequence of the Admiralty regulation!

But to show, with reference to ships when attacked with this vomito-negro fever (the *epidemic* of the reporters), particularly when it shows a disposition to assume a malignant form, characterised by black vomit, that Sir William Burnett is rather *inconsistent* in his last lachrymose observation, for, at p. 228, he says, "It will be of the greatest importance for the safety of all on board, that the ship should *immediately quit the locality* where the disease originated, and proceed with all possible haste *to some colder region*—if in the south to the southward, and if in the north to the northward, avoiding the neutral ground between the trade winds. The great utility of this measure was practically tested by the *Vestal* in 1835, when her crew were assailed by fever at Port Royal, in Jamaica, which did not cease, although she was shifted from the inside to the Quays on the outside of the harbour; nor until after she had gone far beyond the precincts of the island, and entered the 27th degree of north latitude, on her way to Bermuda. The crew of the same vessel, although not the same men, she having been paid off and recommissioned, were again violently attacked by fever, whilst cruising amongst the windward islands of the West Indies in the latter part of 1839. Instead of running at once to the northward, she proceeded to Carlisle Bay, where she remained about a fortnight; during that time the disease evidently *increased in*

malignancy, and carried off a considerable number of men. She was then directed to proceed *to the northward, and again the disease disappeared* a few days after she had crossed the tropic." And in the same page he says—"The ship's company of the *Vesuvius* were promptly relieved of an invasion of fever by her being ordered from Sacrificios, where it was contracted, to Halifax."

And in making out his Report, he quite forgets what he had said in opposition to my recommendation of sending ships having the disease on board to a cold region. He adds, "The unfortunate *Eclair* might also be cited as a case in point, although she lingered too long within the tropics after the disease had declared its fatal character." And, to wind up his inconsistency, he says (p. 178, African Report), "If all vessels contracting epidemic disease were to leave the station and *proceed directly to a colder climate*, the ratio of mortality, one year with another, *would be reduced at least nearly one half;*" so that, after *shuddering* (p. 114) at the idea of sending a ship to the *northward*, he tells us that, *if such were the practice*, nearly one half of the lives would be saved.

And, at p. 216, African Report, seemingly apprehensive of contagion, it is recommended that the cruisers should never remain longer than a week or two at a time in any of the harbours on the coast, *and not a day, were it possibly to be avoided, in the event of fever being prevalent as an epidemic on shore, and particularly at Sierra Leone.*

I shall here insert an extract of a letter from Commodore Lambert, dated Port Royal, Jamaica, October 23, 1847:

"Shortly after I gave up the command of the *Endymion*, her crew were attacked with yellow fever of a virulent character. *Seventeen* men were sent to the hospital, out of which number *ten died.* Finding the fever daily increasing, I determined to send the ship immediately to the northward.

Captain Courtenay instantly went to sea; and although he had fifty cases of fever, only one of them proved fatal; and as the ship advanced to the northward, it altogether ceased."

Supposing the unfortunate *Eclair* had done the same, how different would have been the result, and how different would have been the fate of the doctors!

And, to show that the *office of surgeon* may be supplied, he says (p. 64, Report), with reference to the *Eden* being in want of a surgeon—

"The captain (Owen),—whose extensive knowledge and long experience of the African climate and diseases, rendered him peculiarly fitted to perform its duties.

"His treatment of this formidable disease, it is stated, was simple, *but more successful* than any that had hitherto been adopted.

"Having witnessed the frequent and *fatal result of energetic treatment*, he had imbibed a kind of horror of bleeding, and, at the same time, a predilection in favour of mild measures, probably from the greater success that attended the simple means employed by the natives and resident Europeans. The abstraction of blood did not, therefore, form any part of his treatment.

"He commenced with some brisk purgative, and, after its operation, patiently waited for a remission of the symptoms, when he exhibited quinine, and continued its use until the patient got well, omitting it, however, if a paroxysm of fever intervened. When diarrhœa supervened during convalescence, he gave calomel until ptyalism was established, after which the patient recovered rapidly."

And at p. 82, with reference to the *Plumper* sloop-of-war, "when a sudden irruption of fever of a most malignant character in a manner unmanned the vessel, the deaths were numerous. Out of thirty-six men sent to the military hos-

pital at Sierra Leone, only twelve survived. They were all subjected to the mercurial plan to its utmost extent; consequently those who recovered had a long and painful convalescence.

"On the cessation of the fever, ptyalism ensued, with frightful swellings of the cheeks and palate, accompanied with *ulceration* of the gums, *looseness* of the teeth, and intolerable *mercurial fœtor,* not only in the wards, but over the *whole hospital.*"

This sad tragedy speaks for itself!

"It is presumed there are few, particularly of those who may have witnessed such scenes, who will not, on calm reflection, and an impartial view of the case, experience a sensation of regret that the *whole of these men had not been left entirely to the curative efforts of nature.* Had their wants been simply attended to, their bowels kept open, suitable food and drink administered, as circumstances required, the mortality could hardly have been greater.

(*I should say not half so much!!*)"

There has existed, for a long time, a delirious quackery, a fanciful theory, that so soon as the gums could be touched by mercury, the disease would disappear; and, to show to what extent this poisonous fancy has been carried, it is stated (p. 243, African Report), "*from three to five hundred grains of calomel* have been systematically given in individual cases of yellow fever, within the space of four or five days, not in a few cases only, but *in many,* and *for months* in succession, blue ointment being at the same time sedulously rubbed into the arms and legs, and also applied as dressing to extensive blister sores, with certainly no better results; for, as under the comparatively mild treatment herein noticed, some patients died with their gums spongy and slightly

swollen, and their teeth loose; while others recovered, and of course suffered severely during convalescence from profuse salivation and ulceration of the mouth, together with considerable swelling of the cheeks, lips, and tongue."

This exposition, by the reporters, of the inapplicability of over-active measures, particularly with reference to mercury, is part of the best advice that has been given. But the fact is, that mercury, as a remedy, has seldom time to produce any effect in the most highly-aggravated cases; and in the milder forms of the disease, as was proved by *Acting-Surgeon Owen* (p. 216), who commanded the *Eden*, (now rear-admiral,) the disease is cured without its assistance.

VIII. Sir W. Burnett, in winding up his letter of the 11th December, says, "Sir W. Pym has asserted that it was not *a remittent fever*—that this term remittent is applied through the whole course of the disease by the late surgeon, Mr. Maconchy, by his assistant, Dr. Hartmann, by the late Mr. Bernard, and finally, by Drs. Stewart and Bryson."

It is not at all to be wondered at, that the surgeons made use of the term *remittent* to the last fever, which commenced between the 19th and 23d of July, at Sierra Leone, as they did not know the difference, they having been instructed by Sir William Burnett, in his published work, to believe that the *vomito-negro fever* was the same as the *remittent*, only in an aggravated form; they were therefore not aware of its nature; and it ought to be recollected that, when the new disease made its appearance, the crew had been healthy during a period of forty-six days, and that there had been no boat work, which was so evidently the cause of the first fever.

To account for the origin of the disease, it is said that the crew had been guilty of great excesses, particularly in drinking; but debauchery of any kind would not surely produce the vomito-negro fever! And even allowing that they had

committed these excesses, how is the attack of the officers to be accounted for, more particularly of the medical officers, who suffered in the greatest proportion?

It is evident, from Mr. Ferguson's statement (p. 75), that the black-vomit fever had only appeared three times at Sierra Leone during his residence there, of nearly twenty years; and Sir William Burnett, in his African Report, confirms this fact, without being aware of the circumstance. In his history of the fevers in the *Bann* (p. 36), of the *Eden* (p. 62), and of the *Ætna*, *Forester*, and *Bonetta* (p. 129), proving that all those ships suffered from Bulam fever, and that their crews had been infected at Sierra Leone, when (what is called) the malignant fever was raging there.

Sir William Burnett is inclined occasionally to decide upon the existence of two distinct diseases, his remittent and the *vomito-negro* fever (under the name of the *epidemic*), as he says (p. 178, African Report), "It is proper, nevertheless, to observe, that nearly *one half of the proportional amount of mortality resulted from epidemic fever alone*, which was confined to a few vessels of the squadron during the years 1822 and 1829-30; again in 1837, 1838, and 1839; and in the *Eclair* in 1845."

And it must be remarked that those are the years mentioned by Mr. Ferguson (p. 75) that the black-vomit fever had appeared at Sierra Leone.

And, to show the difference of the two diseases more particularly as to the scale of mortality, I shall give an account of the visitation of this remittent fever to the crews of a few ships, as mentioned in the Report upon African Diseases:

Page 38. "The *Owen Glendower* arrived on the African station early in the year 1823. The men, after having been much employed in boat service in the river Bonny, and having undergone severe fatigue, were attacked with fever of a

remittent character, upwards of *seventy cases* having occurred, chiefly amongst those on detached service." But no death.

Page 43. "Early in the year 1824, the *Atholl* joined the preventive squadron from England, and immediately commenced the usual duties of the station. Her crew continued healthy until she arrived at Princes Island, where they were employed watering the ship, after which they obtained leave to go on shore to wash their clothes in a shaded stream. Thirty of them straggled into the bush; and having found their way across the island to a small town (Port Antonio), got drunk, and lay about all night in the woods, and in the miserable hovels of the natives. *Forty-one cases of fever* seem to have been the result of this indulgence, and *three* of them terminated in death."

"The same ship again suffered from fever after the rainy season, and a few days subsequently to her leaving Sierra Leone, where the men unfortunately had liberty to go on shore. They committed great irregularities, to which the sickness was chiefly to be attributed. There were altogether *forty cases of fever*, and *three deaths*."

Page 151. "During the first quarter of 1841, but principally in January and February, upwards of seventy cases of fever occurred in the *Wanderer*, of which nine terminated fatally. The whole of these attacks were confined to men who had been *detached in boats up the rivers Nunez and Pongos; not any of that part of the crew which remained in the ship, then at anchor several miles from the land, having suffered. It is remarked that the men who remained in the boats,* as boat-keepers during the night, *generally escaped,* although only a few yards distant from the main body, who *were sleeping on shore;* all of whom, amounting to upwards of seventy in number, with but five exceptions, were taken ill within a fortnight after they returned to the ship."

Page 111. "The *Buzzard* was hauled upon the beach at Fernando Po in June, 1837, for the purpose of repairing her bottom. During that month there were frequent heavy falls of rain, succeeded by intervals of intensely hot sunshine, the thermometer being then about 86° in the shade, and the heat at times scarcely supportable. The master and two of the crew died of fever about that time, and a fortnight afterwards other fresh cases occurred, of which there is not any record; the assistant-surgeon having also died. The sick of the crew were, however, occasionally visited by the surgeons of the station. In this state of affairs the boats were despatched to blockade a slave vessel in the river Cameroons, where, during a period of several weeks, they were *exposed in a low, swampy situation, surrounded on all sides by extensive tracts of mangrove bushes,* and constantly exposed to all the vicissitudes of the weather. After their return, the fever cases began rapidly to increase in number; and on the 5th of July, when an assistant-surgeon joined, there were *twenty-three men on the sick report;* in the course of a *few* days *twenty* more were added, making altogether *forty-three* cases, *three of which terminated fatally.*"

Page 149. "The *Iris* arrived on the coast from England in the spring of 1841. *Endemic fever* first appeared in the last quarter of the year, when there were twenty-eight cases put on the sick list; they all occurred *amongst the people employed in the boats;* the greatest sufferers were those who, contrary to the instructions they had received, not only left the boats, but were foremost in exposing themselves to the fever-exciting agencies of the shore. Two of the cases terminated fatally."

Here we have the case of five ships whose crews had suffered in consequence of exposure to the fever-exciting causes on the coast, where *two hundred and ninety-two* individuals had been attacked with remittent fever, of which number *only twenty*

died,—those individuals who had been so exposed being the only sufferers; and, notwithstanding the irregularities and occasionally crowded state of the sick, there is no black-vomit symptom, nor any spread of the disease amongst the men who had remained on board, proving most decidedly a different and a much milder disease than the vomito-negro fever, and which is confirmed by the following table showing the comparatively small mortality in those years in which the contagious black-vomit fever had not made its appearance, or when the crews had not been exposed to its influence.

Deaths in 1840.		in 1841.	
Lynx	2	Buzzard	3
Fair Rosamond	2	Forester	—
Buzzard	8	Lynx	—
Forester	3	Brisk	1
Brisk	—	Bonetta	4
Bonetta	—	Dolphin	6
Dolphin	1	Saracen	2
Waterwitch	1	Waterwitch	3
Rolla	4	Cygnet	3
Termagant	3	Pluto	2
Persian	3	Rolla	2
Viper	—	Termagant	6
Wolverine	2	Iris	7
Wanderer	3	Persian	10
		Wanderer	12
		Wolverine	7
Total	32	Total	68

Deaths in 1842.		in 1843.		in 1844.	
Madagascar	1	Bonetta	—	Sealark	1
Buzzard	3	Waterwitch	1	Ferret	4
Brisk	—	Cygnet	—	Ringdove	—
Bonetta	2	Ferret	2	Penelope	3
Dolphin	2	Grecian	—	Growler	5
Waterwitch	3	Albert	2	Albert	3
Persian	—	Heroine	1	Ardent	1
Acorn	3	Iris	3	Heroine	3
Albert	1	Kite	2	Madagascar	3
Rapid	1	Madagascar	4	Pantaloon	2
Cygnet	—	Persian	1	Rapid	3
Pantaloon	2	Pantaloon	3	Spy	1
Ferret	1	Rapid	3	Alert	2
Grecian	4	Spy	1	Albatross	1
Pluto	3	Alert	—	Cygnet	1
Rolla	2	Acorn	—	Espoir	—
Termagant	—	Espoir	—	Eclair	—
Heroine	—	Fawn	—	Fawn	—
Iris	2	Hydra	—	Hyacinth	2
Kite	—			Hydra	6
Spy	2			Larne	1
Fawn	1			Prometheus	—
				Star	1
				Wasp	—
Total	33	Total	23	Total	43

By the foregoing tables of mortality on board the ships on the coast during *a period of five years*, when the black-vomit fever was absent, we find that the number of deaths in the whole squadron, amounted only to one hundred and seventy-nine; whereas it appears (p. 133) that two ships, the *Eden* and *Sibylle*, lost by the black-vomit fever in the course of twelve months one hundred and ninety-five, a greater number than the whole of the ships named in the foregoing tables had lost in five years,—a most convincing proof of the existence of *two very different diseases.*

In North America, more particularly at New York, for

several years after 1793, they had unfortunately too much experience in the yellow fever, in consequence of the importation of the disease from the West Indies; and so late as the year 1845 a commission (composed of the most respectable merchants of that city), was appointed to inquire into the necessity of continuing the quarantine laws, and who, after examining a considerable number of medical men, decided in the affirmative, although very much against their own interest.

Dr. Townsend, of New York, says, in reply to queries from that commission:—"Medical science has now completely established the fact in the mind of every intelligent and unbiassed physician, that yellow fever (or the black vomit) is a specific and idiopathic type of fever; *sui generis*, peculiar and indigenous to the tropics, and capable of being imported into extratropical latitudes; and it is generally acknowledged by all those who are practically conversant with this disease, both as it appears within and without the tropics, and who have closely watched and compared its symptoms, and examined the peculiar structural or morbific changes, which are found both during life and after death, that it has no relation or affinity whatever to or with typhus or typhoid fever, intermittents, remittents, bilious remittents, &c. Whatever be the fanciful epithets, such as congestive, malignant, ataxic, adynamic, &c., which some persons choose to attach to yellow fever."

And to show how different the symptoms of the remittent fever are from those in the black-vomit fever, which is a fever *without* remissions and exacerbations, I shall insert a description of the remittent fever in the *Actæon* in 1847, as described in the African Report (p. 171):

"The symptoms and character of all the cases were strikingly similar. First, there were *several hours of shivering* succeeded by severe headache, with occasional retching and

vomiting. There were great heat of skin, suffusion of the eyes, and much thirst; the tongue was always furred, and in some of the worst cases flabby, and enlarged; it retained the impression of the teeth upon the sides. There were deep-seated pains in the limbs, joints, and back. The pulse varied, but never indicated great force; it was most frequently small and tremulous, and seldom exceeded ninety; delirium soon appeared *during the exacerbation*, which, with the great heat of the skin, were decidedly the prominent features of the disease, and sure indications of the severity of the attack: biliary (yellow) suffusion of the skin and eyes took place in most of the cases, as the disease advanced. In all, more particularly in the early stages, the *paroxysms were well marked* and the *remissions perfect*."

The symptoms (p. 173, Report) "were still more marked in the remittent fever on board the *Styx*. In the course of the month of November, after having touched at Fernando Po, she had thirteen cases of fever on board; the disease was of a malignant character, and proved fatal in five instances. During the early period of the disease, the *exacerbations* and *remissions* were *remarkably distinct*—a good day and a bad day, alternately: on the good day there was nearly a total remission of febrile symptoms, but as the fever advanced and the vital energies declined, the remissions became more irregular." *There is nothing of this kind in the black-vomit fever!*

Sir W. Burnett, in his letter of the 11th Dec. (p. 193) says, that I had asserted that the *fever was not a remittent fever!* Sir W. Burnett has no idea of the existence of two distinct diseases. I undoubtedly asserted, and I persevere in the assertion, that from the time the *Eclair* returned to Sierra Leone from Sherbro there was no remittent fever on board that ship, and I have always agreed with Sir William Burnett as to the fever which prevailed between the 3d of April and 5th of June (*during the boating duties*), to have been the *regular remittent or coast fever*.

Having shown the inconsistency of Sir William Burnett as to the necessity for the immediate removal of ships to a cold latitude, when their crews are suffering from vomito-negro fever, I must now refer back to p. 102, where the same inconsistency is exhibited with reference to bloodletting. He boasts of "*his success, which has never been exceeded.*" He says, "blood has often been taken to the amount of 200 *ounces;* and one of his patients, in the course of eight days, lost upwards of 15 *pounds* of blood from the arm and temporal artery." And now we must listen to his change of opinion, if not as to the nature of the disease, as to his boasted success in the practice of bloodletting, in what he considered the yellow or Bulam fever. At p. 103, he says—

"It has been strongly urged upon the younger branches of the profession, for the last twenty years, that bleeding *in a tropical fever* is a SINE QUA NON, and enjoined to be practised WITH A BOLD HAND."

This strong injunction to the younger branches of the profession by their chief, is, however, as suddenly changed as his opinion relative to the removal of ships from the tropics to a cold latitude. He says—"Happily those doctrines, GROUNDLESS *in theory*, and *empirical in practice,* are rapidly giving place to others more *consistent* with *common sense,* and the rules of sober reasoning. The majority of medical officers of the present day find that *abstraction of blood in large quantities* is productive of a dangerous *degree of debility in the typhoid stage of the disease.*"

Next, as to the causes producing this vomito-negro fever, Sir William Burnett is under the necessity of bringing forward a great many; and first, the hold of the ship being in a foul state. He says, in his letter of 21st November (Parliamentary papers), "The fever in the *Eclair* was not produced from *infection*, but from marsh miasmata, and *the state of the ship's hold!*" having previously stated, in his

letter of 29th October, to the Secretary to the Admiralty, "that when the healthy part of the crew were employed in clearing out the *holds of the Eclair* at Boà Vista, they were *found to be perfectly clean.*"

There is a little contradiction as well as inconsistency in the two statements, which appears more remarkable at p. 228 (African Report), where it is said—"It would be well to avoid, under all ordinary circumstances, attempting to clear out a vessel on the spot where the disease originated, *more particularly if there be reason to suppose it has arisen from a foul state of the holds*, for by opening and disturbing the various matters contained in them, the cause must necessarily be let loose upon the men with increased force. *It will be time enough, after the entire cessation of the disease*, when by a change of climate and diet the *general health* of the ship's company has *become invigorated*, and when confidence has been restored, to commence the work of expurgation in the vessel."

This has very much the appearance as if the state of the holds, generally, had no more to do with the creation of disease, particularly of black-vomit fever, than it had in the *Eclair*, when the holds were found to be *perfectly clean.*

And, if a foul state of the ship's hold could produce such a fever, it is not likely that the disease would disappear while the original cause remained.

In the case of the Bulam fever on board of ship, so long as she remains *in a warm climate* there is no cessation of the disease until it has attacked the whole of the crew. The same is the case with a regiment in a barrack on shore: it is rarely that one individual escapes an attack, unless he has passed the ordeal at some former period, being thereby fortified against a second.

Having noticed one very commonly supposed cause for the production of Bulam fever—the foul hold of a ship, I shall

mention a few more causes which have been at different times adduced by Sir W. Burnett:

Exposure to the vicissitudes of the weather.
Irregularities on shore.
Abuse of spirituous liquors.
Hard labour in the sun.
Mental depression.
Green fire-wood.
Stagnant water.
Crowded state of the sick.
Want of ventilation.
Great heat and drought.
Uncommonly wet season.

Notwithstanding this list of productive causes of the disease, the reporters (p. 85, Afr. Report) say—"its origin at Sierra Leone, in 1829, was, *as usual, wrapped in impenetrable obscurity,* but by men of speculative minds it was attributed to various improbable causes. By many it was ascribed to carcases of dead animals being exposed on the banks of the river, and to the position of the slaughter-house. Those causes, however, had all existed before without producing disease. Three slave vessels were next suspected.

"Another opinion was, that it originated at Sangarrah, in 1828, a country thirty-six days' journey in the interior, or between two and three hundred miles in a N.E. direction from Sierra Leone."

This last to me, is the most probable reason for the appearance of the disease at Sierra Leone, and is in some degree a confirmation of its being a disease, *sui generis,* and *peculiar to western Africa.*

At the present time at Sierra Leone it is considered a disease of foreign origin, and in the opinion of the population, derived from the West Indies, or from slave vessels coming from other parts of the coast.

This information I have from the present governor, Mr. M'Donald.

REMITTENT FEVER.

The remittent fever before 1796, even in its *most concentrated form*, was never suspected to be of a contagious nature any more than ague: there was but one opinion upon the subject by medical men. About this period, however, some time after the Bulam fever had been imported into Grenada, and that it had been communicated to the different islands, (being at this time a disease unknown to the oldest practitioners in the West Indies,) it created the greatest confusion by appearing in the different situations (where the remittent prevailed endemically) under a different and more violent form, when, from its character and history not being known, it was very naturally supposed to be an aggravated or malignant type of the common remittent.

At this time, soon after the expedition under Sir Charles Grey, there were a considerable number of naval and military medical officers who formed various speculations as to the nature of what they considered *one disease*, not being aware of the new and unknown visitor having secretly arrived from the coast of Africa and established itself in the same locality as the endemic remittent.

Amongst the medical men of that day who left some record of their confused ideas as to the nature of this fever, were Dr. Jackson, Dr. Lempriere, Dr. Gillespie, Dr. Ferguson, and Dr. M'Arthur. The first three repeatedly changed their opinion as to the nature of the disease, not being able to account for its appearance at one time, as the common remittent, and at another as a continued fever without remission or exacerbation.

Dr. M'Arthur was the only physician at the time who drew a line of distinction between the two diseases; the Bulam he

describes as a *continued fever of one paroxysm* in which he had never noticed a remission.

Dr. Ferguson could not account for the sudden and unexpected bursts of this fever in certain spots when there was nothing in the *season* or in the *locality* to account for such a visitation.

It was most mysterious and perplexing to the medical men, as they well knew that the regular remittent was a disease of season in most hot countries, that it never displayed the fury of what was called the *epidemic*, and that its invasion, progress, and departure, could be calculated upon almost to a certainty.

The Bulam, or vomito-negro fever, unlike the remittent, appears suddenly and unexpectedly, at uncertain and distant periods, even in the most healthy situations! In the West Indies, as on the coast of Africa, it is often absent for years, and during periods when remittents in their worst form have prevailed.

Is not all this a decided proof of the existence of two different and distinct diseases, without any identity in their symptoms, progress, or history. And it is from their appearing occasionally at the same time, and in the same locality, that all the doubt and perplexity have been occasioned; and hence the *origin of the controversy as to contagion or non-contagion*, which ought to have been as to the *existence* or non-existence of *two* different and distinct diseases.

All this variety of opinion, confusion, and conjecture, as to the cause of this extraordinary and fatal disease, ought to convince medical men as to its want of all connexion with the remittent fever, which is well known to originate from only one source, viz. marsh miasmata, which produces the disease in various grades of severity, according to the degree of concentration of the marsh poison.

This appears very remarkably at p. 222, where I have inserted from the 'African Report' the amount of deaths in what may be considered a mild form of the disease, compared with the following extracts from the same 'Report upon the Diseases of the African Coast,' where the miasmata proved to have been in a much more highly concentrated state.

P. 153. "The *Lily*, in the early part of 1842, arrived from the Cape of Good Hope. On the night of the 27th April, a party of marines and seamen slept on shore at 'Loando.' In a fortnight after this exposure six of the party were seized with fever, of whom four died on board, and another in the *Waterwitch*. Thus, of six attacks, only one recovered."

P. 140. "Eighteen cases of endemic fever occurred in the *Wolverine*, after the seamen had been employed in repairing the vessel at *Acra*. The disease did not appear until the 30th of July, five days after leaving the anchorage. It is necessary to observe, that the men had permission to go on shore in watches. Of the eighteen cases, *nine died*, and five of the survivors were sent to the hospital for debility in October."

"The *Eclair* steamer was another strong instance of the concentrated cause of marsh fever (p. 183, African Report) when off one of the most sickly stations, Sherbro, where twelve cases of remittent fever occurred amongst the men employed in the boats, seven of which proved fatal."

But this difference of the two diseases cannot be more strongly pointed out than by the following table of mortality of the African squadron in the year 1845, the Bulam or black-vomit fever existing in one ship only, occasioning 74 deaths, and the remitting fever, and all the other diseases on the coast, producing, in twenty-seven ships, a mortality of 47, six of them not having lost a man.

TABLE of MORTALITY in the African Squadron.

1845.			
Eclair	74	Rapid	2
Hecate	—	Sealark	3
Larne	1	Albatross	1
Waterwitch	2	Alert	—
Ferret	1	Actæon	3
Ringdove	2	Cygnet	2
Penelope	8	Espoir	1
Wasp	2	Flyingfish	1
Growler	3	Hydra	2
Albert	1	Pantaloon	—
Star	2	Prometheus	—
Ardent	1	Ranger	—
Styx	5	Rolla	1
Heroine	—		
Total			118

BULAM FEVER.

I HAVE asserted, that this fever is a disease *sui generis*, and highly infectious; that its infectious powers are increased by heat, and totally destroyed by cold; and that it is possessed of *one important peculiarity*, viz., that it attacks the human frame but once, and that its origin is totally unconnected with the marsh or remittent fever.

I have also stated it to be a disease, a native of, or peculiar to Western Africa, as the *Pestis bubonica* hitherto has been to Turkey and Egypt,—both diseases, however, capable of being exported from their own territory; and it is rather singular that at such extreme points, the one should have the character of being incapable of existence in a certain degree of heat, and the other in a certain degree of cold.

The remittent fever is well known to have its origin from marsh miasmata.

And it has been asked whence the origin of this Bulam or black-vomit fever? To this I must reply by asking another question:

Whence the origin of smallpox, or the plague (pestis bubonica) of Turkey and Egypt?

This last has for a long period been considered to be endemic in those countries. Of late years, however, both Turks and Egyptians have become more enlightened on the subject, and they now consider it a disease produced, they do not know how, by Divine influence, for some good purpose, but certainly in some unknown and inexplicable way, like Bulam fever, smallpox, &c.

About ten years ago, the Sultan appointed a mixed Commission or Board of Health, at Constantinople (with branches throughout the country), which established very stringent precautionary regulations against the plague, which have been acted upon ever since with the most perfect success, there

having been no spread of plague in the country ever since the establishment of their quarantine regulations.

The Viceroy of Egypt, although later in establishing the precautionary arrangements, has, however, been equally successful, there having been no spread of plague in Egypt since October 1844.

I had an audience with Mehemet Ali in 1845, and when I stated to him that I had made arrangements for steamers arriving in England from Egypt to be immediately admitted to free pratique, without quarantine, he replied—"Oh, as to quarantine, there ought not to be any quarantine; *it is our fault;* we must get rid of the plague!"—showing clearly that, in his opinion, it was not an endemic of the country; and he has ever since been making great efforts, by his arrangements, to exterminate the disease throughout his dominions.

I have said so much relative to the pestis bubonica, to show that this disease, after having been for a long period supposed to have been indigenous, more particularly in Egypt (for the Turks have generally accused that country of having been the nursery of the plague), that civilization and the influence of other countries in Europe first induced the Sultan to put in force regulations against the introduction of the disease into Turkey; and, from the successful issue of his measures, whenever it has appeared, that Mehemet Ali followed the example, and apparently with the same good result.

But, to return to the Bulam or black-vomit fever. Its origin is as unlikely to be ascertained as that of smallpox, and its existence in a population or community much more difficult, on account of the absence of any external distinguishing mark, as in the phlegmasiæ, more particularly on the coast of Africa, where the population generally consists of negroes; and as the disease is known to attack this race in a comparatively mild form, at its first commencement it can only *be suspected* from the *continued form* of the fever in those

attacked, and the absence of remissions, and exacerbations, (as the fever in a case of smallpox is always doubtful, and not to be positively decided upon, when prevalent in a district, until the appearance of the eruption) ; so the presence of this fever is most generally to be ascertained by its attack upon the Europeans, and showing too soon in them the fatal, and decided pathognomonic symptom, *black vomit.*

So soon as this *fatal symptom appears,* not a moment ought to be lost in commencing precautions.

In the Mediterranean, men-of-war shun the plague as they would a hidden rock; but this African fever is a much more formidable and dangerous disease, and much more difficult to be avoided.

The quarantine regulations established at Gibraltar (p. 18) during the years 1800 and 1803, when yellow fever prevailed most extensively to the east and west of that garrison, and the arrangements carried into effect (pp. 18-28), prove the beneficial effects of precautionary measures.

And this was proved to be too true in 1804, when, in consequence of the chief of the medical department in the garrison having never seen the disease, and unfortunately, holding the same opinions as to the nature of the disease as Sir William Burnett, all precautionary measures were laid aside during the prevalence of the fever at Cadiz.

The disease was, in consequence, introduced into the garrison.

The individual (the cause of it) was well known to have resided in a house at Cadiz in which some persons had died, and, taking alarm, he left the place, and arrived next day in Gibraltar, apparently in good health.

The day after his arrival, however, he was attacked; the inhabitants of the neighbouring houses soon after suffered; and although the disease was confined to this spot for a considerable time, no precautions were taken. The disease spread generally; and the false theory relative to this disease occasioned a dreadful mortality (p. 26).

It is evident from the successful arrangements had recourse to in Gibraltar in 1810 (p. 28), that whenever the black vomit fever makes its appearance in Europe its progress may not only be checked but entirely put a stop to, if the necessary arrangements are had recourse to in proper time.

It is also evident that the disease might have been prevented from being communicated to the crews of certain ships on the coast of Africa, and *consequently a great many lives saved,* as appears most clearly in the case of the *Eden* and *Champion* when at Sierra Leone, (p. 118,) when the malignant fever prevailed on shore.

In the case of the *Sibylle* frigate (p. 126) at Fernando Po.

Of the *Bonetta* (p. 139), when she fell in with the *Forester* (in a sickly state) at sea, and received from on board of her a prize crew.

All the mortality which occurred on board those ships, and at two different periods amongst the population of the Island of Ascension, I assert was owing to the false theory and erroneous doctrines which have been taught relative to the nature of the black-vomit fever during the last thirty-five years; viz. *that the Bulam fever is only a higher grade of the marsh remittent,* and not infectious; that is, not to be communicated from person to person.

That the importation of this black-vomit fever took place in Grenada in 1793 there can be no doubt; for this we have the authority of three most respectable medical men, Dr. Chisholm, Sir Joseph Gilpin, and Dr. Stewart, who had all been established in the island for periods between sixteen and eighteen years.

This importation happened at a most unfortunate time, very shortly before the arrival of Sir Charles Grey's expedition with 10,000 men, the regiments of which it was composed having, soon after the conquest of Martinique, St.

Lucia, and Guadaloupe, been distributed amongst the different islands in which the fever had already established itself, and which carried off *six thousand of their number* in a very few months. The different regiments were so much reduced in numbers by the disease as to be unfit for service; the remaining privates were, therefore, according to the regulations of that time, drafted into other corps; the skeleton of the regiment, consisting of officers and noncommissioned officers only, returned to England, where they were filled up with new recruits, when many of them were a second time ordered back to the same station, where the same melancholy tragedy was repeated. This enemy of the human race having naturalized itself in the different islands, continued to be so as long as it had fresh subjects to work upon; and they continued to be supplied during several years, until, I believe, 1808-9.

It was the same with the ships-of-war, transports, and merchant-vessels; their crews all suffered most severely, and I may safely state that during the period I remained in the West Indies, and several years after, there was not one ship of any description whose crew did not suffer more or less upon the West India station.

The following is a list of H. M. S. which all suffered severely during a certain period in the West Indies.

Northumberland.	Camilla.	Captain.	Amelia.
Atlas.	Cerberus.	Recruit.	Berbice.
Nimrod.	Thais.	Pert.	Julia.
Trinidad.	Ulysses.	Vimera.	L'Eclair.
Dart.	Belleisle.	Pompée.	Heureux.
Blonde.	Iphigenia.	Circe.	
Acosta.	Ramillies.	L'Actif.	

One remarkable case of importation of this fever was in the *Atlas*. This line-of-battle ship had been upon a cruise, and arrived at Barbadoes all well, when the *Northumberland* and

other ships were suffering from the black-vomit fever. There being a considerable number of convalescents in a debilitated state, they were ordered to be removed into the *Atlas*, which was ordered to cruise to windward for their recovery. Unfortunately, however, the disease was communicated to the crew of the *Atlas*, and she was under the necessity of returning in about three weeks with the loss of nearly one hundred of her own crew.

The *Iphigenia*, reckoned the crack frigate on the station, suffered very severely, notwithstanding the high state of discipline. The captain (now Vice-Admiral Hyde Parker), from the fanciful opinion of the medical men that the disease was occasioned by the foul state of the hold, had them kept in the most cleanly state, with a fire constantly burning to correct damp, and to create circulation of air: notwithstanding all this good arrangement, the fever got into the ship, and carried off more than one hundred and twenty of her crew.

In consequence of the urgent request of Sir W. Burnett to the Lords of the Admiralty to have a satisfactory settlement as to the history of this *Eclair* fever (*before its appearance on the island of Boà Vista was known*), he says, in his letter of the 11th Dec. 1845—"Before concluding, I trust their lordships will pardon me if I again most respectfully urge that my former request be adopted, of sending a competent person to examine and inquire whether any disease of a similar nature, traceable to the *Eclair*, prevailed in that country subsequent to the departure of that ship from Boà Vista; it will do much to settle a question of great importance, equally interesting to the commerce of the country and to medical science."

It was settled that he should select one of his own medical officers to proceed to the island of Boà Vista, whose Report was to be decisive as to the contagious or non-contagious nature of the diseases on board the *Eclair;* no doubt very confident that the settlement was to be conformable to his

own opinion, more particularly as he had selected a gentleman, perhaps the best qualified for the mission of any medical officer in the navy, Dr. M'William, who had had great experience in the *remittent fever*, having been the principal medical officer with the Niger expedition, and no doubt quite aware that that complaint was not contagious.

And I cannot help noticing the singular and unaccountable neglect (it cannot be called oversight) on the part of Sir W. Burnett and Dr. Bryson, with reference to Dr. M'William's Report, after having so urgently represented the necessity of his being sent to Boà Vista, to have passed it over in their publication, without the slightest allusion to its existence.

The document, however, I consider of such importance that I must be excused in taking up the subject with the view of endeavouring to fill up the vacuum from the point at which the Reporters upon the Diseases of the African coast have left off, they no doubt having been aware of the difficulties and inconsistencies, which they would have to encounter in every page.

On the 31st January, 1846, Dr. M'William received the following instructions from Sir W. Burnett:

Instructions to Dr. M'William.

" You are to ascertain whether fever was prevalent in Boà Vista or in any of the other islands at the time the *Eclair* arrived there. And if so, how long it had prevailed? What was its character—epidemic, endemic, or sporadic? Whether it had originated in the island, or in any of the other islands, or been imported. And whether there was any other proof of its being of a contagious nature, or data to lead to a contrary conclusion? You are to obtain, if possible, a correct list of the names of all the strangers or islanders who visited or were on board the *Eclair* while she remained at Boà Vista. And a similar list of the soldiers or other individuals who were

stationed in the fort on the small island, during the time the crew and sick of the *Eclair* were disembarked there, and to ascertain if any of those parties have since been affected with fever similar to that of the *Eclair*, and if so, to obtain a list of their names, date of attack, and the result of the disease; and to state whether it appears that the attack was contracted from exposure to some morbific agent of a miasmatic nature, generated or existing within the vessel, or from exposure to a specific contagion emanating from the bodies of the sick?

"The latter query applies particularly to the soldiers stationed as a guard in the fort.

"You are also to ascertain whether there is any direct proof of the disease having been communicated by those individuals to a second party, and from that to a third party, and so on; and if any of them have died in the fort you are to make particular inquiry if they were ever on board the *Eclair?*

"And whether it appears that the fever was communicated to any individual in the house where the officers and their servants resided, or to any person in its immediate vicinity?

"Also, whether any of the women who washed the officers' clothes contracted fever? and were the Africans or islanders black or coloured?

"Whether there is any proof of the disease breaking out in the parts of the island where, from the distance from the town and anchorage, or other circumstances, the inhabitants could have had no communication, either direct or indirect, with the *Eclair?*

"Whether the disease had spread to any of the neighbouring islands; and by what means?

"And further, whether there are circumstances from which it may be inferred that the fever lately prevalent at Boà Vista was an indigenous production, or that it originated in causes unconnected with the *Eclair?*

(Signed) W. BURNETT,

Director-General."

Dr. M'William, upon his arrival at Boà Vista, commenced the examination of labourers who had been employed about the *Eclair*.

"MEN FROM RABIL EMPLOYED ON BOARD 'ECLAIR.'

Luis Fortes Pathi, dark mulatto native, aged 40, *examined.*

Were you employed on board *Eclair?*—Yes, I was.

How long?—About eight days.

In what way?—Hoisting in water and coal.

Did you go below?—Yes, I was below nearly a day, pumping water.

Where were the sick at the time?—They were in the fort on the small island. I was on board when they were brought from the island, the day the ship sailed.

Were you at the fort?—No, not while the sick were there, nor since.

Did you at once go to your house at Rabil when the *Eclair* sailed?—Yes.

Did you not take some articles of clothing with you to Rabil, which you got on board *Eclair?*—No; I took nothing but what I had on my back.

What family have you?—I have none left. I had a wife and three children.

Did they all die of fever?—Yes, all of them.

Were you attacked with fever?—Yes, I was first attacked.

When were you attacked?—About three days after I went to Rabil from the ship.

Are you quite sure you were taken ill so soon as three days after the ship sailed?—I am quite sure.

Were you with your family when you were taken ill?—No, I was not. I went to my own house when I first returned from the ship; but next day paid a visit to a friend at Moradinha, a small village to the east, about half a mile from

Rabil, where a *festa* was being held, and I was there taken ill.

How long did you remain at Moradinha?—I was there eight days sick.

What did you complain of?—I had general fever, headache, pain of back and limbs—very sick.

Did you then return to your own house at Rabil?—Yes; at the end of eight days I was carried to my house in Cabeçada (Rabil).

How long were you sick after your return to your own house?—Nearly three weeks.

Were you seen by any medical man?—No.

Did any one take sick in the house were you lay at Moradinha?—No, not until a long time afterwards.

Who of your family (after yourself) was first taken ill?—My daughter, twelve years of age.

How long after your return from the *Eclair*, or, if you can recollect better, after your return from Moradinha, was it that this girl was taken ill?—She was taken ill some time about the beginning of October.

How long was she ill?—Only three days.

What symptoms had she?—She had burning fever, and for several hours before she died vomiting of black stuff, and delirium.

She was not seen by a doctor.

Which of the family was next attacked?—Another girl about seven years of age, about four days after the first one died. She died in four days, in the same way as her sister.

Who was the next?—My boy, about eleven years of age; he was taken ill within eight days after the second girl died, and lived only five days after he was seized.

And your wife next, and last?—Yes, my wife was taken ill on the very same day the last of the children died; she lived fifteen days afterwards, and died with black vomit.

Were you the first person taken ill at Cabeçada (Rabil)?—Yes, I am quite sure."

"*Manoel Rosa, a mulatto, a native of Boà Vista (Cabeçada), examined.*

This man was taken ill about the time that Luis Fortes Pathi was laid up with fever, or soon after.

You were employed on board the *Eclair?*—Yes, fifteen days watering and coaling. I was on board the day she sailed.

What were you doing on board?—I went on board to assist in weighing the anchor. The sick came on board when I was there.

Did you go home as soon as the vessel sailed?—Yes, I did.

What family have you?—Four children.

Were you attacked with fever?—Yes.

When?—I do not know when, but it was after Luis Pathi was sick; also after Joaquim Pathi and a child of Manoel Fachina's were taken ill.

Had you seen Luis Pathi or any sick before you were attacked?—No, I had not seen any sick person.

You are quite sure?—Yes, quite sure.

How long were you ill?—About ten days.

What did you complain of?—General fever, with pain of head and back.

Were your children taken ill?—Yes, the only one in the house (the others being away in the country) took fever two days after her attendance upon me.

How long was she ill?—About a week; she had vomiting, but not black vomiting.

When did your daughter return from the country?—Three weeks since; she was not taken ill.

Did any one else visit you when you were sick?—Yes, several; my own relatives, Maria Angelica, Margarita Marques, and Dorothea.

Did any of them fall ill?—Yes, Maria Angelica, five days after."

"*Manoel Fachina examined.*

Were you on board the *Eclair*?—No, I was six days employed in coaling.

Were you attacked with fever?—Yes.

Who was first attacked in your house?—My wife and both children were sick before I was.

Had your wife been to visit sick people?—Yes; she had been a good deal in Luis Pathi's house, who was among the first, if not the very first, sick at Rabil; my child was sick three days, the last few hours she had black vomit."

"*Joaquim Pathi, aged 37, examined.*

Are you related to Luis Pathi?—Yes; his cousin.

I was employed on board the *Eclair*, and assisted in getting the sick out of the boat when returning on board.

I am not sure of the time when I was attacked with fever; but I know it was after my cousin Luis Pathi was sick.

Had you been to see your cousin when he was ill?—Yes; I went to see him when he was ill at Moradinha.

How long after this was it that you were taken ill?—It was not for some days; for my cousin was brought to Cabeçada, where I again saw him before I was laid up.

Do you know who were the first persons taken ill at Cabeçada?—Yes; my cousin Luis Pathi and his children first, then Manoel Fachina, then Manoel Rosa, then Luis Delgado Nazari, and next Joaquim Pacho or Marques.

Where does Luis D. Nazari live?—Next door to me.

Had he been to see your cousin Luis or yourself?—He came to see me when I was ill.

I was ill eight or nine days.

My wife was only six days ill.

The children had only slight attacks of a few days."

"*Luis Delgado Nazari examined.*

I was never on board the *Eclair*, nor at the island.

I had fever after the *Eclair* sailed.

Where?—At Rabil.

I visited Joaquim Pathi, who is my next-door neighbour, when he was sick; also Joaquim Marques and his son, who had fever, and who live close to me; I likewise saw Manoel Rosa when he had fever.

I have a wife and two children; they were taken ill after me."

This I consider sufficient evidence with reference to the labourers who had been on board the *Eclair;* and it ought here to be remarked, that these men had been employed chiefly coaling and watering only two days, viz. from the 11th of September to the 13th, the day the *Eclair* left the island, and that the Kroomen had been employed in the work of whitewashing, moving the tanks, &c., when *the hold was found to be quite clean.*

I shall next give the examination of the soldiers in the fort on the small island, in which the sick were accommodated.

"*Miguel Barbosa examined.*

Were you at the fort on the small island when the sick of the *Eclair* were there?—I was.

How long were you there before the *Eclair* sailed?—Six or seven days.

Did many of the *Eclair's* people die?—I recollect that five died on one day.

How long did you remain at the fort after the *Eclair* left Boà Vista?—Several days.

Some of the soldiers were taken ill on this guard; who was the first?—Corporal Joaquim Agostinho.

How long after the *Eclair* sailed was it that he was attacked? —*The day after the steam-vessel sailed from Boà Vista.*

When was João Alexandre Roque attacked?—*On the same day as the corporal.*

How long were they ill?—The corporal died on *the third day,* and Roque on *the fourth day* from being attacked.

What did they complain of?—First, general fever; then delirium; afterwards constant black-vomiting.

Did you assist in carrying their bodies to the boat for the purpose of burial?—Yes, I did. I assisted Manoel Antonio Alves.

What room in the fort did you and the Portuguese soldiers occupy when you first went there?—We occupied the cook-house underneath the piazza; but we occasionally went into the room that had been used by the sick of the *Eclair.*

You mean after the *Eclair* left?—Yes; before and after.

Was this room cleansed in any way immediately after the *Eclair's* people left it?—The same day the *Eclair's* people left the island, I was ordered by Corporal Agostinho to sweep it out, which I did. On this occasion all three of us were in the room.

What became of the clothes of the corporal and Roque after their death?—They were thrown into the sea the day on which the soldiers died.

By whom?—By Manoel Antonio Alves.

Who, besides the guard, saw the Portuguese soldiers?—Dr. Almeida visited them once, and Portugo, the slave of Mr. Joao Baptista, also saw them.

Where did the corporal die; I mean in what part of the fort?—A day before he died he removed to the room where the *Eclair's* men had been, and he never left it until he was carried out.

Where did Roque die?—Under the piazza.

When you were relieved where did you go to?—To a house in Pao de Varella.

Were you much visited in this house?—Yes; Anna Gallinha and Joanna Pereira were usually in this house.

Where did you go to after you left the house in Pao de Varella?—To the barracks in Porto Sal Rey.

When were you laid up?—I was still complaining when I went to the barracks, and was laid up in bed the next day.

In the barracks?—Yes.

How long were you in bed?—Three or four days.

Did your comrades visit you?—Yes.

Was any one then sick in the barracks?—Yes; Luis Briza."

"*Pedro Manoel, soldier, examined.*

You are a native of the neighbouring island San Antonio; how long have you been here?—Only seven or eight months.

Were you at the fort during the time the crew of the *Eclair* were there?—No; I was not there while the *Eclair* was there. I was sent by the Commandant to attend upon the Portuguese soldiers who were taken sick after the *Eclair* sailed from Boà Vista.

How long did you attend them?—Upwards of three days.

What did they complain of?—They could not eat nor drink, they had vomiting of a black-looking stuff, and they talked foolishly.

Were they visited by a medical man?—Yes; Dr. Almeida saw them; but only once.

Did any one else besides Dr. Almeida see them: I mean any one from Porto Sal Rey?—Yes, another man; a slave belonging to Joao Baptista; his name was Portugo.

Do you know if he got fever?—I know he got fever, but I do not know at what time he died.

How long did you remain at the fort after the Portuguese soldiers died?—About four days.

Were you at all unwell during these four days?—I was not quite well; and the Commandant fearing my comrade and myself might have fever about us, did not allow us to return to the barracks at Porto Sal Rey, but put us both into a small house in Pao de Varella.

How long did you remain in this house in Pao de Varella?—Seven or eight days; we then went to the barracks. In

three or four days more I was taken ill with general fever, and then lived in the house of Manoel Johanna, a storekeeper, when I was laid up in bed fifteen days; I had black vomit, and was visited by the doctor of the Governor-General.

Were you visited by your friends when in the house of Manoel Johanna?—Yes.

When you and your comrade, Miguel Barbosa, were in the house at Pao de Varella, were you visited by any one?—Yes, by a great many; in particular by Anna Gallinha, a Portuguese woman, who cooked for us. Another woman, Joanna Pereira, was also constantly in the house."

"*Manoel Antonio Alves examined.*

I was at the fort when the sick of the *Eclair* were there.

When I was there as a guard, Corporal Vincente da Cruz Silva and Luis Briza were there with me.

Were you there in any other capacity than a guard?—Yes; I was sent there by the Commandant to bury the bodies of the Portuguese soldiers who died there after the *Eclair* sailed.

Who assisted you to bury the bodies?—Joaquim Farenga and Manoel Luis went with me in the boat from Porto Sal Rey to the island. I ran up to the fort, and there saw Pedro Manoel and Miguel Barbosa, privates on duty.

Were both the sick soldiers dead?—No; Corporal Agostinho was dead, and private João Alexandre Roque nearly dead.

Who assisted you to carry the bodies to the boat?—Pedro Manoel, Miguel Barbosa, and I rolled the body up in a quilt (the body looked very bad, and smelt most offensively); we put two boards under the body and carried it to the boat; we took it about a mile and a half to the southward of Porto Sal Rey, and buried it in the sand on the beach.

When did João Alexandre Roque die?—The day after the corporal.

Did you also bury his body?—Yes.

Were you on this occasion again assisted by the same comrades you had before?—Yes, I was accompanied by the same soldiers, and Miguel Barbosa and Pedro Manoel assisted me to carry the body to the boat, and we buried it in the same manner as we had done that of the corporal.

When you had buried both bodies, did you and your comrades return to Porto Sal Rey?—Yes, we did.

How long did you remain at this time at Porto Sal Rey?—Only an hour or so; for the Commandant ordered me to go again to the fort as a guard.

On this second occasion on which you were sent as a guard, whom did you relieve?—Miguel Barbosa and Pedro Manoel.

Who accompanied you as your comrades in the guard?—Lorenzo Samed and Pedro Gonzalves, both private soldiers.

On this occasion where did you sleep?—We slept in the same room which had been occupied by the sick of the *Eclair*.

How long did you remain with this guard?—Only a day and a half.

Were you and your comrades relieved at this time?—No, I was taken sick, and my comrades hoisted a signal to that effect; whereupon the barrack boat was sent from Porto Sal Rey, and took me to the barracks.

Where were you lodged in Sal Rey?—In a back room in the barracks.

How long did Lorenzo Samed and Pedro Gonzalves remain at the fort?—I do not know, but they were both taken with fever, and Pedro Gonzalves died.

How long were you ill at the barracks?—Only four or five days very ill. I was weak a much longer time."

Evidence relative to the visitors of Miguel Barbosa and Pedro Manoel, private soldiers, while in the house at Pao de Varella, after their return from the fort.

"*John Jamieson called in and examined.*

Do you know anything about those who visited Miguel Barbosa and Pedro Manoel while in the house at Pao de Varella after they returned from the fort?—To my knowledge they were visited by a great many people, in particular by Anna Gallinha, a Portuguese woman, since dead; Anna Texeira, a native; Silvester Jose Romess, and his wife.

Was Anna Gallinha attacked with fever?—Yes, she was; and hers was the first case that excited any apprehension, or indeed attracted any notice in Porto Sal Rey. I am aware that Justinian was sick some considerable time before this, and so was Corporal Perez. I also heard something of Anna Gaspar being unwell; but little, if any, attention was paid to the reports of the illness of any one until Anna Gallinha showed strong and suspicious symptoms. She was the first person that died from fever in Porto Sal Rey.

How long was Anna Gallinha sick?—Only four days.

You mention suspicious symptoms, what were they?—High fever, wildness, and black vomit.

Was she visited by others?—Yes, by many. Joanna Texeira attended her as nurse. Manoel Affonso, a labourer, also was often in the house.

About what time was Anna Gallinha taken ill?—I am not quite sure, but I think about the 12th October last year.

Was Joanna Texeira taken ill?—Yes, she was, about a week or ten days after Anna Gallinha's being taken ill. She was weak a long time after the fever left her.

Who attended Joanna Texeira?—Dr. Kenny as medical attendant, and her own son as nurse.

Was her son taken ill?—Yes, a few days after he had been acting as nurse to his mother.

How long was he ill?—Not more than five or six days.

When was Dr. Kenny taken ill? Not until a considerable time afterwards.

When was Manoel Affonso laid up?—He was taken ill the day after Anna Gallinha died.

Had he seen Justinian or Corporal Perez?—I am not sure.

How long was Manoel Affonso ill?—He died after four days' illness.

Do you know any one who attended or visited Manoel Affonso during his illness?—Yes, I know he was a good deal visited by a man called Luis Ignes, who is now at San Antonio.

Was this man not on board the *Eclair?*—Yes, he was.

Was he taken ill?—Yes, shortly after the death of Manoel Affonso; he was attended by Dr. Kenny, and recovered.

Were there any other visitors?—Yes, Gertrude Bent, her next-door neighbour; she was taken ill, and soon died.

Did all those you have mentioned as having been taken ill live in Pao de Varella?—Yes, all of them.

Do you know anything of the woman who washed the clothing of Pedro Manoel and Miguel Barbosa, the two soldiers who, after returning from duty at the fort on the small island, were for some time lodged in the house at Pao de Varella?—Yes, she is the wife of Silvester Jose Romess, a mason in Pao de Varella.

Was she, or any one in the house, taken ill after receiving the clothes?—Yes, she was; and so was Silvester himself.

When was Silvester taken ill?—I am not quite sure, but it was about the same time as Anna Gallinha was.

How long was he sick?—I do not know how long, but he was a long time poorly.

Do you know if he ever was on board the *Eclair*, or at the fort?—He was not at either."

From all this evidence it is very clear that there was a double inoculation of the island, first by the Pathi family—Luis Pathi himself having been on board the *Eclair* assisting the sick when they were re-embarked on the 13th September; and next by the soldiers from the fort, their case being still more decided as to the infectious nature of the fever; and as to its being *a peculiar disease*, the two men on guard having been attacked in three or four days after the sailing of the *Eclair*, and both died with black vomit, Dr. M'William says—

"The previous healthy state of Boà Vista will, I think, not now be questioned, nor will the occurrence of the disease in the two European soldiers at the fort (on the small island), soon after the departure of the *Eclair's* people. If, then, the absence of all local cause on the small island, and the identity of the diseases that proved fatal to them and to the sailors be admitted, the inevitable conclusion is, that the fever was propagated to the soldiers, either directly by contagion from the bodies of the sailors, or by an infectious matter left in the room which had been occupied by the sick crew. The same reasoning applies to the island of Boà Vista itself, to which it seems, beyond any doubt, that the fever was conveyed *by the negro soldiers*, and by them *transmitted* to Anna Gallinha and their other visitors at Pao de Varella.

"The disease was for some time confined to the visitors of the negro soldiers, or the immediate neighbourhood where they lodged; and it is remarkable that Anna Gallinha, and Lisboa the writer, the only two Europeans in the same row, both died. From Pao de Varella the fever can be traced to the lower part of Porto Sal Rey, eventually including nearly the whole of the population that remained in the town.

"At Rabil the case was the same as at Porto Sal Rey. Luis Pathi, who had been a labourer on board the *Eclair* (and who was very strongly suspected of having had in his possession a coverlet and blanket from the fort), was taken

ill at Moradinha, and remained there some days in the house of Gustavus Fortes Varella, who, with his wife, was attacked with fever three weeks afterwards. Pathi was carried to his own house in Cabeçada, where there was not a single case of disease of any kind. In a short time his whole household, consisting of his wife and three children, were attacked, and speedily fell victims to the fever. *From this house, as from a central point, the disease spread in all directions,* more especially to the south-west, and most densely populated, part of the village.

"When the disease extended to the villages near the eastern and western extremities of the island, and had to traverse miles of uninterrupted waste of sand and rock before reaching a place of destination, its march became still more clearly defined.

"In fact it may be said, that in *each town and village on the island,* the disease first appeared in *a single house, which became an irradiating focus for its dispersion in all quarters.*"

The following is a melancholy history of the progress of this frightful disease in a family at Boà Vista; and if ever the proof of the existence of a contagious fever was looked for, here it is to be found:

"Mr. Pettingal, the Arbitrator of the Mixed Commission Court at Boà Vista, who left the island on the 22d October for San Nicolao, returned on the 11th November, under the belief that the disease had nearly, if not altogether, disappeared.

"Mr. Pettingal and his family, consisting of his wife and daughter, a young lady about twenty years of age, were lodged for the first night, on their return to Boà Vista, in the house of Mr. Macaulay, and on the following day removed to their own house. A day or two subsequently, two mulatto girls, who, during the absence of the family at San Nicolao, had been in charge of the house, were both taken ill with

fever; and, although one was sent home immediately, the other remained in the house three days after she was attacked, and was during this time frequently visited by Miss Pettingal. Both of the mulatto women recovered; but, on the 17th of November, or six days after the return of the family to Boà Vista, Miss Pettingal was seized with symptoms of fever, which in forty-eight hours were unequivocal, being marked by black vomit, and terminated fatally on the afternoon of the 24th November, or the seventh day from being attacked.

"Miss Pettingal was sedulously attended during her illness by Mrs. Learner, an English nurse, and constantly visited by her father, mother, and Dr. Kenny, her medical attendant. The captain of an American merchant-ship, who had been at Porto Sal Rey for some weeks, very frequently visited Mr. Pettingal's house during his daughter's illness, and assisted, at least on one occasion, in shifting the bed on which she lay from one room to another. John Dachin, an English servant of Mr. Macaulay, also assisted during Miss Pettingal's illness, and slept one night in the house.

"John Dachin was attacked on the 25th November, and died on the fifth day, with the most malignant symptoms of yellow fever, in the house of Mr. Macaulay. Mrs. Learner must have been attacked almost immediately after Miss Pettingal's death, for she died on the 27th November.

"Dr. Kenny was taken ill about the same time, and also died on the 27th, at Rabil.

"The American captain had violent vomiting two days after the death of Miss Pettingal, when he was put on board a small vessel and conveyed to the adjacent island of Sal, with the view of joining his own ship. The authorities there, however, would not allow him to go on board his ship, or to land, and he died on his return to Boà Vista, in the same small vessel, just as they were entering the harbour.

"The results of the return of this family to Boà Vista had been already sufficiently direful; they were, however, not yet completed.

"Two days after the death of his daughter, Mr. Pettingal, with his wife, embarked in a schooner called the *Livramento*, and sailed for San Nicolao. During the passage he seemed completely prostrated by mental rather than physical suffering. The vessel arrived at San Nicolao on the following day, and was ordered to perform a quarantine of fifteen days at a desolate part of the island, called Tarafal Bay, which greatly aggravated Mr. Pettingal's despondency. He now complained of pain in his legs, which exhibited large dark-coloured patches, acidity at stomach, general pains and yellow suffusion of the eyes; hiccup and black vomit closed the scene on the 5th December.

"The *Livramento*, immediately after the death of Mr. Pettingal, returned to Boà Vista, and again landed Mrs. Pettingal there. On the passage one sailor died of yellow fever, and another went on shore ill at Porto Sal Rey, where he soon died of the same disease."

The main conclusions come to by Dr. M'William, from a review of the whole circumstances that came under his notice, seem to have been—

"That Boà Vista was free from any kind of sickness prior to the *Eclair's* arrival, as well as during her stay there, and for a short time after her departure.

"That the disease of which the Portuguese soldiers died at the fort (Duke of Braganza) on the small island, was that which afterwards ravaged Boà Vista, and was the same as that which prevailed among the crew of the *Eclair*.

"That the fever was propagated throughout the island almost exclusively by direct intercourse with the sick, there being only two cases in which there appears any probability of persons having been infected in any other way.

"That, connecting the whole of the circumstances attending the arrival and stay of the *Eclair* at Boà Vista with those

under which the disease appeared on the small island, and afterwards on Boà Vista itself, leaves no doubt of its having been introduced by the *Eclair*."

Another of Dr. M'William's conclusions was—

"That the fever on board the *Eclair* was primarily the remittent fever of the African coast (which is not a contagious disorder), but that the disease acquired contagious qualities in virtue of a series of causes."

As to this last conclusion, I cannot help differing in opinion with Dr. M'William; and the reasons given for his arriving at such conclusions are certainly not well founded. I shall give them in his own words:

"Under ordinary circumstances, the fever which attacks ships' crews on the African coast is the common bilious remittent. Seldom or ever has it appeared that a disease characteristic of black vomit has at once broken out in a ship. This malignant symptom rarely occurs, even on shore, except during some of the severe epidemic visitations. Judging, therefore, from the result of general experience, as well as from the medical reports, it seems to me to admit of no doubt that the disease which invaded the *Eclair* in April, May, and early part of June, 1845, was the usual endemic fever of the African coast, which, although a most fatal disease, is not considered to be of an infectious or contagious nature. The mental despondency which seems to have pervaded the crew rendered them indeed peculiarly susceptible of disease, not only while on detached service in the boats up the river, but also on board the ship (around which the commonly recognised causes of fever were in great abundance), and on this account it is probable that the fever was of a more aggravated type than usual.

"At Sierra Leone, the irksome and unwholesome duty of cleaning the hold of the *Albert*, as well as that of their own vessel; the unwonted exposure in some cases by day and

night; the irregularities committed by men who had for some months been exposed to morbific influences;—all combined to the development of a fever of a much more malignant nature than the usual endemic of the African rivers.

"Accordingly, several of the cases that occurred after the ship left Sierra Leone were marked by unequivocal black vomit, a symptom, as has been already mentioned, extremely rare in the endemic fever, and regarded by all who have served in hot climates as a test of unusual malignancy.

"It is thus quite evident that the type of the fever changed materially for the worse during the passage from Sierra Leone to the Gambia and Boà Vista. There is also great reason to believe that it acquired still greater virulence while the crew were at the fort. The house in which the sick were lodged contains only one room at all well ventilated; and, judging from the evidence of Dr. Almeida, they must have been much crowded: at all events, the fact is beyond a doubt that the accession to the sick list and the mortality became much greater at this than they had been at any previous period. In short, from the endemic remittent of the African coast, the disease had, from a series of causes, been exalted to a concentrated remittent, or yellow fever."

There can be no doubt the first fever in April, May, and early part of June, was the remittent, or marsh fever; but, as my French friend has said at page 91, it is not more likely to change into the black-vomit fever than that a ladybird is likely to be changed into an elephant.

The first reason given for the metamorphosis is *mental despondency*, in consequence of the sailors seeing prizes taken by other vessels when they were not doing the same; (this is rather a childish reason,) and, if it was true, not likely to produce black-vomit fever.

Next as to *the causes of fever* being *in great abundance* when the men were on detached service in the boats up the

rivers, it must be recollected that that fever had *altogether ceased* from the 5th of June until the 22d of July, so that this could have had nothing to do with the change of type of the fever, for there was actually no fever to be changed!

Then comes the irksome and unwholesome duty of cleaning the *Albert* as well as their own vessel, the unwonted exposure by day and night, the irregularities of the men, all combined to the development of a fever of a much more malignant nature.

This combination is far-fetched, but not very uncommon with the crews of men-of-war, but it never produces anything like Bulam fever.

Dr. M'William, in his Report (p. 110), says: " Sir W. Pym, and those who espouse his doctrines, will contend that the *Eclair* fever was *from the first a contagious disorder*, essentially differing from the remittent fever of the African coast. If a disease such as that described by Sir William Pym be really endemic on the coast, surely we ought to hear more of it, considering the large squadron which is now kept there.* If it be assumed that the fever on board the *Eclair* was the Bulam, and therefore *primarily* contagious, I would ask where was it contracted? not at Seabar, for in that case other vessels on the station would be affected with a similar disease. Was it at Sierra Leone?" To this last question I reply, *Yes*, most decidedly. The Bulam fever was in existence at Sierra Leone in July, when the *Eclair* was there. Dr. Aikin, the colonial surgeon, mentioned particularly three individuals who had died with black-vomit.

The very first case of fever, the only one in the ship, (mentioned by Captain Estcourt in his letter of the 8th Sept.), died with the black-vomit symptoms.

Mr. Dawson, a passenger, who embarked (unwell) on the

* This is fully explained in Mr. Ferguson's Paper, page 75.

23d of July, died on the 27th with the same symptom. I state this upon the authority of Commander Harston, who was first-lieutenant of the ship at the time.

The three next cases (men who had slept on shore), were attacked with fever soon after going on board, and all died with the same symptoms.

All this is tolerable proof of a new and very different disease. I do not consider it to be an *endemic* of the coast of Africa, but a peculiar disease existing in the interior of the country, like the pestis bubonica of the Levant, originating or produced, like smallpox, (we do not know how,) and conveyed to the coast only occasionally; as it has been clearly proved by Mr. Ferguson's Paper (p. 75) to have existed during certain and distant years, and at different seasons, in Sierra Leone; and this fact is confirmed by Sir W. Burnett and Dr. Bryson's Report upon Diseases of the African Coast, by the very great mortality in certain ships which had been infected during the prevalence of malignant fever at that station, or in ships which had afterward communicated with, and been infected by the first infected vessels.

I have mentioned that at Gibraltar, during the prevalence of the fever in Spain in the year 1804, when no precautions were used against it, the disease, for the first time in a hundred years, was introduced, and in less than three months carried off fifty-three officers, a greater number than had died in that garrison during the whole century that it had been under the British crown. In Barbary the disease was never known but once; viz. in 1800; since which time that country has escaped its ravages, the Moorish government evading its belief in predestination by establishing, through the medium of the foreign consuls, a strict quarantine upon Spain when yellow fever exists. Philadelphia and New York have also escaped it of late years by a quarantine against the West Indies.

These observations, together with the established fact of its having prevailed in the most healthy situations, not only in the West Indies, but in Europe, on board ship as well as on shore, I take it for granted are sufficient to prove it to be a disease of foreign origin, and of course contagious. The evidence which I shall adduce in favour of its attacking the human frame but once, in my Letter to the Lords of Her Majesty's Council, it will be proved beyond a doubt that it is a disease *sui generis*. For the present I shall insert the following from Sauvage's 'Nosology,' printed eighty years ago.

"*Typhus icterodes contagiosus est; albos tantum maxime peregrinos ex regionibus frigidis advenas, Indos, Hybrides, mulatros omnes, exceptis infantibus una tantum vice afficit; nigri vero ab eo morbo nunquam afficiuntur.*"

The evidence in favour of this singular and heretofore incredible peculiarity is an object of the greatest importance to establish, as furnishing us with a barrier on the part of the healthy, (and of humanity on that of the sick,) against a disease far more to be dreaded than the plague. I therefore consider it my duty to bring forward such proof as must at once set the question at rest.

When Dr. M'William returned from his mission to the Cape de Verd Islands, his Report, upon being presented to the Lords of the Admiralty, was called for by the House of Commons and ordered to be printed. And having been directed by the Lords of Her Majesty's Council to state my opinion upon it, I sent in a reply, of which the following is a copy.

'ECLAIR' FEVER.

"*Sir William Pym to the Clerk of the Council.*

April 23d, 1847.

"Sir,—Agreeably to the desire of the Lords of Her Majesty's Council that I should state my opinion upon the Report submitted by Dr. M'William, Surgeon, R.N., to the Lords of the Admiralty, relative to the fever which prevailed at Boà Vista, one of the Cape de Verd Islands, in the years 1845 and 1846, (supposed to have been introduced to that island by communication with the crew of Her Majesty's ship *Eclair,*) I have the honour to state for the information of their Lordships, that I consider Dr. M'William's Report to the Lords of the Admiralty to be a most valuable document, and that the variety of uncontrovertible evidence brought forward by him relative to the disease in question, has finally decided and set at rest a most important and long-contested question relative to the nature and history of yellow fever, more particularly as to its infectious power.

"Dr. M'William had, from the peculiar circumstances attending the *Eclair* steamer, and the intermediate position of the small island, on which there was a military guard, with reference to the Island of Boà Vista itself, a most favorable opportunity of following up his investigation, which I cannot help saying he has done with great judgment, perseverance, and impartiality.

"His object in carrying on his inquiry has evidently been with a view of bringing to light the truth by well-established facts, tracing the progress of the cases of fever, which occurred first among the persons employed in coaling and watering the *Eclair;* next amongst the guards stationed in the Fort; and last amongst the inhabitants of the towns and villages. He begins by stating, that upon the arrival of the *Eclair* at the island, leave was given to the petty officers and a few of the sailors to land, and that the sailors resorted chiefly to the house of a person named Justinian da Silva Giorgio, who

kept a spirit-store in the town of Porto Sal Rey; and states what is remarkable, viz., that this man was attacked with headache and general fever on the evening of the day on which he was visited by the people of the *Eclair.* He was attended by Dr. Almeida, and during his illness, which lasted a fortnight, was visited by many of his friends, amongst others by two females, Anna Gaspar and Rosinha San Antao, both of whom had slight attacks of fever shortly afterwards; they soon recovered, and their illness attracted no notice whatever.

"This was the first and a very early case of fever, although in a very slight form, originating from the *Eclair.* The next, and a very strong case, is that of Luis Pathi, who had been employed in coaling and watering the *Eclair* after the crew had been landed. When the steamer took her departure from Boà Vista, this Luis Pathi returned to his home at the village of Rabil, and the day after went to Moradinha, a village not far off, to attend a festival, and on the 17th of September, four days after the *Eclair* sailed, while engaged in the dance, was attacked with illness and put to bed, where he remained for a week; when sufficiently recovered, he was carried back to his family in Rabil, where there was not a single case of disease of any kind amongst the inhabitants. In a short time, however, his whole household, consisting of his wife and three children, were attacked one after another by the fever, and all fell victims to it, with the distinguishing symptoms of black vomit, &c.

"The two next remarkable cases of attack were Corporal Joaquim Agostinho and private Joào Alexandre Roque, both belonging to the guard of the fort in the small island. The corporal was taken ill on the 14th of September, the day after the *Eclair* sailed, and died with fever, delirium, and black vomit, on the third day. The private was attacked on the 15th September, and died on the fourth day, with the same symptoms. These two persons were attended during their illness by two privates, Miguel Barbosa and Pedro Manoel,

both negroes. When relieved from the guard, they were, as a matter of precaution, not sent to the barracks, but to a house in the district of Pao de Varella. While there they were visited by different persons, but particularly by a European woman, Anna Gallinha, who cooked for them, and by Joanna Pereira, a native. The first was attacked with fever three or four days after the soldiers left the house, and died with high fever, delirium, and *black vomit.* The case of this woman, with this very suspicious symptom, was the first that created any alarm in the town of Porto Sal Rey, and occasioned many of the inhabitants, particularly the Europeans, to fly from the island. The disease, from this time, spread rapidly amongst the inhabitants of the neighbouring houses, and ultimately over the whole town.

"The next case is that of Manoel Antonio Alves, the soldier who was ordered by the Commandant to bury the remains of the corporal and private who died in the fort. He was taken ill on the second day after this painful duty, and relieved in consequence of his guard at the fort, his comrades having hoisted a signal for a boat, which carried him to the barracks, where he continued very ill four or five days.

"I have thought it necessary to give this short portion of the evidence which points out so decidedly the early attack of persons who had communicated with the *Eclair*, more particularly as it has been asserted by Sir W. Burnett that no case of fever had appeared amongst the population until a month after the departure of the *Eclair* from the island.

"The same kind of evidence is brought forward throughout the Report, relative to the importation of the fever into the different villages; and in the words of Dr. M'William, 'in each town and village on the island, the disease first appeared in a single house, which became a focus for its dispersion in all quarters.' And 'It is evident that the fever at Boà Vista possessed the properties usually attributed to a contagious disorder; and connecting this fact with the time

and circumstances of the seizure of the soldiers at the Fort with fever, and of the appearance of the disease in the town of Porto Sal Rey, will, I think, leave no doubt of *its introduction into the island by the Eclair*, and that the fever was propagated almost exclusively by direct intercourse with the sick.'

"The chief instruction given to Dr. M'William was to inquire whether any disease of a similar nature to that which existed on board the *Eclair* prevailed in Boà Vista after the departure of that ship from the island, or in other words, to ascertain 'whether it could be fully and satisfactorily shown that any person who had visited the ship or tents where the sick were placed, contracted the fever in question and communicated it to others, and they to other persons in succession, who had not visited the ship or tents.' * Those questions which have reference to the infectious or contagious power of the yellow fever, as I have before stated, Dr. M'William has finally settled and brought to a complete test; and he deserves well of his country for the manner in which he has executed his mission.

"The subject, however, is one of such vital importance, and has been so long misunderstood, that I trust their Lordships will excuse me for entering at some length into an explanation of the nature and history of this disease, such an opportunity never having before presented itself for placing at rest a long-contested question relative to the infectious or non-infectious powers of the yellow fever.

"For many years a controversy has been carried on by medical men relative to the infectious or non-infectious nature of the yellow fever; a controversy originating from an opinion that the marsh or remittent fever, and the disease known as yellow Bulam, or black-vomit fever, are the same disease; this last, in the opinion of non-contagionists, becoming, from a

* Page 74, 'Correspondence respecting the *Eclair*,' presented to Parliament, 1846.

variety of causes and circumstances, a concentrated remittent or malignant yellow fever. This controversy, I trust, is now finally settled by Dr. M'William's report; and that the question ought not to have been upon the *subject of contagion or non-contagion*, but upon the *existence or non-existence of two very different diseases.* At page 75, Parliamentary Papers, I have stated that there are two distinct diseases prevalent on the coast of Africa: the one the remittent fever, from which our seamen suffer so severely in consequence of boat-service on the rivers. This is the same disease as the well-known Walcheren fever, the malaria of the Levant, and the jungle fever of India, and exists in all warm climates, in moist and uncultivated grounds. Any person who has had one attack of this fever is very liable to a second, and afterwards to attacks of ague. *This fever is not infectious!*

The other disease is a very different one; it is in no way connected with malaria or unhealthy situations. *It is unknown* in the East Indies, in Egypt, or in Turkey, and is a native of, and peculiar to west Africa, as the *Pestis Bubonica* is to Turkey and Egypt.

"1st. It is a disease *sui generis*, known by the name of African, yellow, or Bulam fever, and is the *Vomito Prieto* of the Spaniards, from its being attended with the peculiar and fatal symptoms of *black vomit*, a symptom which rarely if ever appears in the marsh or remittent fever.

"2d. It is highly infectious.

"3d. Its infectious powers are increased by heat, and destroyed by a certain degree of cold.

"4th. It attacks natives of a warm climate in a comparatively mild form.

"5th. It has also a singular and peculiar character; viz. that, like smallpox, it attacks the human frame but once.

"This disease, from the west coast of Africa, has been at various times imported into different islands and countries;

viz., to the different West India Islands, the Island of Ascension, and to different ports of Spain and North America, as in the year 1845 into the island of Boà Vista.

"No disease has produced so great a mortality in our colonies or has been so little understood by medical men, as the one in question. Having had the advantage of seeing this disease, not only in the West Indies, but in Europe, and several times witnessed its dreadful ravages, I had the good fortune to ascertain the before-mentioned peculiarities belonging to it, which up to the present time have not only been doubted, but denied, and asserted to be *a gratuitous assumption on my part*, and *not founded on fact*, more particularly that of its attacking the human frame but once—a peculiarity of the utmost importance to be generally known, as relating not only to the comfort of the sick, but as assisting most materially in the regulations necessary to be established with the view of checking the progress and cutting short the spread of this most fatal of all diseases.

"It is, however, gratifying, and certainly most remarkable, that the peculiar circumstances attending the *Eclair* steamer, during the year 1845, and the landing of her crew on the small island near Boà Vista, have tended in a great degree, if not altogether, to clear up, explain, and do away all doubts as to the nature of the disease in question; for it appears evident from the history of the *Eclair*, that she had both diseases on board, at different and distinct periods, viz., the marsh or river fever, during the months of April and May, up to the 5th of June, and the yellow or Bulam fever, with black vomit, from the 23d of July to the time of her arrival in England.

"The *Eclair* had been at anchor off the coast of Africa from January to June 1845. The crew had been a good deal employed in boats blockading the Sheabar river; and the first serious case which occurred on board from the time of her arrival from England was on the 3d of April; from this date to the 8th of June, ten seamen had died; and according

to the report of Dr. Stewart, 'the type of this first fever was well marked remittent.' From this time, the 5th of June, the crew of the *Eclair* continued healthy until the 23d of July, the day of sailing from Sierra Leone (where she had been at anchor from the 4th of that month), as appears from Captain Estcourt's letter to Commodore Jones, in which he states: 'We left Sierra Leone the 23d of July, with *one case of fever,* the remainder of the crew quite healthy to all appearance; but before reaching Bathurst, on the 10th of August, we had lost seven men from fever, besides a gentleman from Sierra Leone, Mr. Dawson, to whom I had given a passage.' This man—the only case of fever on board—died on the fourth day after leaving Sierra Leone, *with black vomit,* the first case in which this symptom had appeared.

"From the time of his attack the disease spread rapidly, the passenger and thirteen seamen having died before arriving at Boà Vista, many of them with the same symptom, *black vomit,* and which appeared in most of the fatal cases afterwards, even until some time after the *Eclair* arrived in England.

"The *Eclair,* after arriving on the 21st of August at Boà Vista, remained at anchor ten days before landing her crew on the small island; during which period five of the seamen died. This being considered a *great mortality,* the medical men *unanimously* recommended the landing of the crew, sick and well, on a small island half a mile distant from Boà Vista, with the view of checking the progress of the fever. This recommendation, proved, however, an unfortunate and most melancholy mistake, and showed how little the medical men knew of the disease. They, considering it the marsh fever, *took no precautions*—sick and well, were allowed *indiscriminate intercourse,* and the deaths, instead of diminishing, increased to a frightful degree, as appears from this extract from Captain Estcourt's letter of September 8th, 1845:* 'Following the

* Page 45, 'Correspondence respecting the *Eclair,*' presented to Parliament, 1846.

unanimous advice of the medical men, and others resident here, I landed all the crew, placing those under cover of tents who were well, and the sick *in good airy rooms:* a few soon recovered so as to walk about; but the fever spread rapidly among the crew, and between the 1st and 8th of this month we have lost *three officers, six seamen, three stokers, four marines, and three boys,* making the total number of deaths since leaving Sierra Leone, thirty-five.'

"By Captain Estcourt's letter, however, of the 11th of September, three days later, it appears that forty men had died since leaving Sierra Leone.

"How different would have been the result, if the steamer had kept at sea! Five men only having died on board in ten days, and twenty-eight during the same period when on shore.

"This proves strongly what I have stated relative to the infectious power of this disease being increased by heat; the heat of course being much greater on this small fort, surrounded by a wall twelve feet high, than on board the steamer with the north-east trade-wind blowing fresh.

"The following extract from the report of the medical men shows also the conviction of their melancholy mistake in landing the crew:

"'We are of opinion that the measures most conducive to put a stop to the progress of the disease, and promote the recovery of those at present ill, is for Her Majesty's steam-vessel *Eclair* to be removed immediately to a much cooler climate. We are most decidedly of opinion that, from the *extremely malignant* character of the fever, which has *resisted the treatment usually found successful* in the common endemic fever of the coast—its continuance since the removal of the *Eclair* from the coast, under the present high temperature, as well as the extreme liability that all convalescents from severe coast fever, have to a return of the disease on again

approaching the coast—the object desired will not be attained if the *Eclair* continues within the tropics.

(Signed) W. F. CARTER,
Surgeon H.M.'s Steam-vessel *Growler*.
JOHN MACONCHY,
Surgeon H.M.'s Steam-vessel *Eclair*.
GAWIN M. M'CLURE, M.D.,
Additional Surgeon, *Eclair*.'

"This report, although it shows the conviction on the part of the medical men of their mistake as to the landing of the crew, it shows also their non-acquaintance with the nature of the disease;—it shows that they were not aware either of its being *the yellow fever*, or of its being *infectious;* and it proves the melancholy consequences which may, and do take place from medical men not being aware of the *two distinct diseases*.

"The report, however, of Dr. M'William, has proved most clearly (what had been before acknowledged by Sir W. Burnett himself, in the the case of the *Bann* sloop of war) that the disease may be imported to an island; and if so, there can be no doubt of its being imported into a ship; and of this we have too often seen the melancholy results, not on the African coast only, but in the West Indies and in the Mediterranean.

"In the year 1794, in the West Indies, after Sir Charles Grey's expedition, every man-of-war and transport on the station suffered severely from it, and without any suspicion of marsh miasmata; the army was said to have lost 6000 men.

"In the years 1795-6 the army of St. Domingo lost above 10,000 men. The disease appeared at Gibraltar on the 29th of August, 1804, in the person of an individual who had arrived from Cadiz the day before, having resided in a house, in which several individuals had died from yellow fever, then prevailing at Cadiz: no precautions were taken for a long

period against the spreading of the disease, and it carried off, in consequence, in less than four months—

Officers.	Soldiers.	Soldiers' Wives and Children.	Civilians.		Total.
54	864	164	4864	=	5946

"The garrison had been in possession of the British for 100 years, and this was the first time this disease had appeared within its walls.

"The *Eclair* steamer was reckoned a most unfortunate ship from her having been the first vessel which had brought the fever to this country; but if we look to the cruisers on the African coast, as well as in the West Indies, it will be found that the loss of half the crew by this disease is not uncommon.

When the Bulam Fever was at Sierra Leone,

In the years 1829-30,

The Sibylle frigate lost		96
Eden frigate	,,	99
Plumper sloop	,,	23
Hecla sloop	,,	39

And in the years 1837-8,

The Raven sloop lost		20
Forester	,,	23
Curlew	,,	21
Ætna	,,	30
Dolphin	,,	16
Bonetta	,,	26
Scout	,,	21

"In those years the black-vomit fever got into those ships, and this frightful mortality, compared with that of the three preceding years, shows the presence occasionally of this fatal scourge.

"In the year 1834, the whole squadron, consisting of 13 ships, lost only 18 men.

"In the year 1835, the whole squadron, consisting of 15 ships, lost only 19 men.

"In the year 1836, the whole squadron, consisting of 18 ships, lost only 16 men.

“What I have stated relative to the infectious nature of this fever, and the possibility of its being conveyed from the crew of an infected ship to that of a healthy one, will, I trust, be sufficient to induce the Lords of the Admiralty to give *such instructions to officers commanding men-of-war in the West Indies and on the coast of Africa*, as may prevent the introduction of this disease into their ships: naval officers are sufficiently prompt, in taking precautions against the Oriental plague, but I can assure them that this is a much more formidable and fatal disease.

“A very great proportion of mortality in this disease, I assert, is owing to the mistake (this is the mildest expression I can make use of) on the part of medical men with respect to the nature of this disease.

“Look to the fatal results as to the crew of the *Eclair* by being removed from a comparatively cold atmosphere on board ship to a species of oven on shore, where they were mixed up together, without any precaution or restriction as to intercourse.

“Look to the sufferings and mortality of the population of the island of Boà Vista, in consequence of their communication with the crew of this ship. It has been said that the Governor of Boà Vista humanely offered the use of the island to the captain of the *Eclair* for the convalescence of the crew.

“It has also been stated that this act of humanity was offered by the officers of Haslar Hospital, when the *Eclair* arrived at the Motherbank, and that I refused.

“Looking to the result of the hospitality at Boà Vista, was it not properly refused in England, several deaths having taken place on board of her and on board the hospital ship, even after her arrival at Standgate Creek, when the thermometer was at a lower temperature than that which is supposed to put a stop to the disease?

"The various peculiarities attending this disease have been confirmed by the winding up of Dr. M'William's Report.

"First. The infectious nature of the disease has been proved by its importation into the island of Boà Vista, and its general spread afterwards among the population, as well as by the attack of Mr. Bernard, the surgeon, who embarked at Madeira, of Lieutenant Isaacson belonging to the ship, and of the pilot who embarked at the Isle of Wight, who all died at Standgate Creek!

"Secondly. Its attacking the natives of warm climates in a comparatively mild form.

"This has been proved most strongly in the case of the soldiers, there being only *forty-one* on the island, *thirty-two* of them natives and nine Europeans; of the thirty-two natives only three died, and of the nine Europeans eight died.

"The same was the case with the English residents; eight were attacked, of which number seven died.

"Thirdly. Its infectious power being increased by heat is proved by the great increase of mortality when the crew were landed in the warm and badly-ventilated fort, surrounded by a wall twelve feet high. Thirty-nine deaths having occurred in this situation in the course of fourteen days; five seamen only having died within nearly the same period when the crew were on board with a fresh north-east wind blowing.

"As to its being a native of, and peculiar to West Africa, it is difficult to bring forward positive proof of the existence of the disease on the African coast amongst the natives; because when they are attacked by it, *it is in so mild a form* that it rarely, if ever, proves fatal to them, and it is only in the persons of natives of a cold climate that the peculiar symptom of black-vomit shows itself. From the importation of the disease, however, from that coast to the West Indies—and from its non-existence in any other warm climate, there can, I think,

be little doubt of its origin. On board the *Eclair* steamer there were forty Kroomen natives of this coast, and it was reckoned singular, that not one of them had been attacked by it.

"From this circumstance, and from similar cases having occurred before, it was thought that the African negroes were never attacked by it; but supposing the disease to have been smallpox, the non-liability would have been reversed. The negroes would have all been attacked and European sailors would have escaped.

"Is it not, therefore, reasonable, to assert that the Kroomen had had this native fever in their own country at some former period?

"And this is the more likely, as it was found in Boà Vista during the prevalence of the fever, that negroes enjoyed no immunity, but were attacked indiscriminately with the other portion of the population by the disease, though generally in a considerably milder form.

"The *Bann* is one very well-authenticated case of the importation of the disease from the coast into the island of Ascension; but the importation of the yellow fever into the island of Grenada, in the year 1793, is the most decided, being at that time a new and an unknown disease. It happened at a most unfortunate period, immediately before the arrival of the army of Sir Charles Grey into the islands, and in a very short time spread devastation everywhere; it was carried to Jamaica and St. Domingo, and even to New York and Philadelphia; and in consequence of the regular arrival of fresh troops, which acted as fuel to the fire, it became naturalized in that part of the world during nearly the whole of the war, and ceased with the non-arrival of fresh troops.

"The following copy of a letter from Sir Joseph Gilpin (vide p. 49) is a strong proof of its importation into Grenada,

and of its being a new disease; that no such disease existed in the islands for a considerable number of years before the arrival of the ship *Hankey* at Grenada, from Bulam, on the African coast; and it is a remarkable fact that it has been comparatively a rare disease in the West Indies since the termination of the slave-trade.

"As to the *fourth*, and *most important* peculiarity, viz. that of attacking the human frame but once.

"As this fever had never appeared in the island of Boà Vista before, it could not be expected that much proof could be procured there. Dr. M'William met with only three individuals who had passed the fever before, at St. Domingo or Cuba, who were all most assiduous in their attentions to the sick; all three escaped an attack, and they attributed their immunity to that circumstance.

"This peculiarity, however, I consider of such vast importance, I think it my duty to do all in my power at the present moment, to bring forward such proof as must finally set the question at rest.

"At Gibraltar, during the prevalence of the fever in the year 1804, there were fortunately several regiments in garrison, which at some former period had been quartered in the West Indies, while the fever was very general throughout the different islands.

"The following nominal list of officers who were and were not attacked by the fever at Gibraltar, is a document which ought to set at rest the question of liability or non-liability to a second attack of this very frightful disease:

"The staff of the garrison consisted of General Sir Thomas Trigge, General Drummond, Captain Darling, Captain Thackery, General Barnett, Lord Pelham Clinton, Major Andrews, Captain Parsonage, Captain Bruce, Rev. J. Hughes. The first four had had the fever in the West Indies, and escaped it at Gibraltar; the six last were attacked by it, of which number four fell victims to it.

"The medical men who were at Gibraltar during the first ten weeks of the disease were twenty-four in number: six of them, viz. Bell, Borlase, Lully, O'Dwyer, Franco, and Pym, had had it in the West Indies, and all escaped it; while the remaining eighteen, viz. Dr. Nooth, Lewis, Benyon, Glasse, Maxton, Patton, Redmond, Rouvier, Kenning, Cortes, Jay, M'Guire, Desgerrois, L'Odron, Baynes, Burd, Geddes, Minorcan, were attacked by it, and the last seven fell victims to it.

"In the corps of Royal Artillery, there were only two officers who escaped an attack, viz. Brigadier-General Smith and Captain Campbell, and they had had it in the West Indies.

"In the Royal Engineers there was only one officer (now General Thackery) who had had it in the West Indies, and he was the only one who escaped an attack excepting Colonel Fyers, who had placed himself in quarantine.

"In the Second, or Queen's Royals, there were five officers who had passed the disease in the West Indies, viz. Colonel Jones, Major Kingsbury, Captain Walsh, Paymaster Wainwright, and Surgeon Borlase, and all escaped, when every other officer in the regiment was attacked by it.

"In the 10th regiment, every officer was attacked excepting Captain Carpenter, who had had it in the West Indies.

"In the 13th regiment, there were eight officers who had had it in the West Indies, viz. Lieutenant-Colonel the Honorable Charles Colville, Lieutenant-Colonels Jones and Scott, Major Belford, Captain Wilkinson, Mr. Murray, Quarter-Master, and the Adjutant, and all escaped it, although every other officer in the corps was attacked by it. This same regiment, with five of the above-named officers, and ten of those who had passed it at Gibraltar, embarked for the West Indies in 1809, where they all escaped an attack of it, although eight of the newly-appointed officers fell victims to it.

"In the 54th regiment, every officer was attacked by it excepting Colonel Darby, Captain Louis, and Surgeon

O'Dwyer, who had had it in the West Indies. This regiment returned to the West Indies, filled up with new officers and men, and after being eighteen months in Jamaica, was attacked by and suffered severely from this disease, when all the officers and men who had had it in Gibraltar escaped.

"In the Regiment De Rolle, every officer was attacked by it excepting Lieutenant Muller, and he had had it in the West Indies.

"In the corps of Royal Barrack Artificers, every individual in the corps was attacked by it excepting Serjeant Jones, who had had it in the West Indies. Two more proofs of the Bulam fever not attacking a second time, were in the 55th and 70th regiments; this last suffered severely from the disease in the island of Martinique in the year 1794, and returned to the West Indies in 1800, filled up with new officers, with the exception of Colonel Dunbar, Major Elliot, Captains Johnstone, Lawrence, Hutchinson, and Boat, who had all had the fever before, and now escaped an attack, although ten of the newly-appointed officers were carried off by it in a very short period.

"The 55th was stationed in the island of St. Lucia in 1796, where it was nearly annihilated by this fever, after which the skeleton of the regiment returned to England, was filled up with officers and men, and after being six years in Europe, embarked for Jamaica, where it arrived in 1802.

"In this island it again suffered severely, a great proportion of the men and twenty-one of the newly-appointed officers having fallen victims to it. Mr. M'Millan, formerly surgeon to the regiment, says it is worthy of remark, that every individual in the corps was attacked by this fever excepting Colonel Hogg, Captains Brown, Muttlebury, Lee, Dickson, Jones, Crichton, Humphries, Carpenter, and Wilkinson, who had had it at St. Lucia. Upon a moderate computation, there were 150 officers (civil and military) at Gibraltar, in 1804, who had not had the disease before, and twenty-five who

had passed it in the West Indies; and making an allowance for one or two doubtful cases where the disease was so mild as not to confine the patient to bed, 145 at least out of the 150 were attacked by it, while every individual who had had it before escaped.

"The occurrences at Gibraltar are sufficient proof that persons who have had the disease in the West Indies are not liable to a second attack in Europe.

"The 13th and 54th regiments are proofs that persons who had it in Gibraltar are not liable to a second attack in the West Indies.

"And the 13th, 55th, and 70th regiments are proofs that persons who have had it in the West Indies are not liable to a second attack upon their return to that station after having been several years in Europe.

"This evidence, so decisive, not only as to its infectious powers, but as to its attacking the human frame but once, I trust will induce all medical and other authorities to give instructions, for the same precautions being used against this as they would against any other highly-infectious disease.

"As, however, some individuals may not be satisfied with the authority of this statement, I have been urged to bring forward (in full) the following most important document, which appeared in the 'Gibraltar Chronicle' of the 24th January, 1829:—

"*Notice*

"The Lords of His Majesty's Most Honorable Privy Council having, so long ago as the year 1815, taken into consideration a singular peculiarity asserted by Dr. Pym, in a published work, to belong to the *Bulam fever* (the name adopted by him for the disease which has so lately prevailed in this garrison), viz. 'the non-liability of persons to a second attack;' and the Lords of the Council having referred the question to the Royal College of Physicians in London for

their opinion, the College, in two successive reports, replied in substance as follows :—

"'That from the evidence before them, there seemed strong reason to believe that persons are not liable to a second attack of that disease; but, in giving this opinion, they could not avoid bearing in mind the fallibility of all medical observations, and the *extraordinary nature of the fact*, which bears no analogy to the circumstance of those fevers which the *Bulam* most resembles; and they therefore feel that it will be impossible for them to give a positive assent to the assertion of the non-liability of the human frame to a second attack of the fever in question, until they shall be able to avail themselves of a more enlarged experience, and the concurring testimony and observation of a greater number of medical practitioners.'

"His Excellency, the Lieutenant-Governor, is of opinion that this *most important* question should, if possible, be *definitely settled;* and conceives that the present is the best time, and this place the fittest spot on the face of the globe, on which to accomplish this most desirable object.

"1st. Because there are now here a considerable number of medical men of different nations, almost all of whom have had the most ample opportunities of witnessing the progress of this disease during the recent epidemic, and some who have observed it in former years both here and elsewhere.

"2dly. Because there are now said to be within the garrison 6000 persons who have had this disease, during its prevalence in the years 1804-13 and 14, without affording a single instance of a second attack.

"3dly. Because the place itself is so perfectly insulated, and so limited in its extent.

"His Excellency, therefore, has directed Dr. Pym, principal medical officer, to propose four medical officers, selected from the staff of the garrison, to constitute a Board; to request the

assistance of Drs. Chervin, Louis, and Trousseau, the three physicians deputed by the French government to investigate the nature of the late epidemic; and also to add to this Board such Spanish and British practitioners as he may think fit.

"As it is of the utmost importance to all nations, to humanity generally, as well as to science, that no doubt should any longer exist as to the question of liability or non-liability to a second attack, and as it is highly desirable that the present favorable opportunity for obtaining this result should not be neglected, his Excellency directs that the Board, constituted as proposed, shall assemble on Tuesday, the 27th instant, and Friday, the 30th, (and such other Tuesdays and Fridays as they may think proper to appoint,) at the Court-house, at 12 o'clock, to take into consideration the testimony of the different medical men, military as well as civil, in the garrison, upon all matters connected with this question; and the Lieutenant-Governor invites those gentlemen to afford every information in their power, as well by their personal attendance as by written documents, if required.

By command,

S. R. CHAPMAN, Civil Secretary.

"Head Quarters, Gibraltar, Jan. 23d, 1829."

REPORT.

"*To his Excellency Sir George Don, &c. &c*

Gibraltar, March 31, 1829.

"Sir,—The Board of Physicians convened agreeably to the notice published by order of your Excellency in the 'Gibraltar Chronicle' of Saturday, the 24th of January last, for the purpose of investigating the question of liability, or non-liability to a second attack of the disease, which has at different times prevailed in an epidemic form in the south of Spain, but more particularly last autumn in this garrison,—having now com-

pleted their inquiries on this interesting subject, have the honour to lay before your Excellency the following report of their proceedings.

"The Board consisted of the following physicians and surgeons, viz :—

Dr. Louis, Dr. Chervin, Dr. Trousseau,	The three physicians deputed by the French Government to investigate the nature of the late epidemic in this garrison.	
Dr. Broadfoot,	Deputy-Inspector of Hospitals,	The 4 senior Medical Staff Officers.
Mr. Dow . .	Acting ditto ditto,	
Dr. Barry . .	Acting Physician to the Forces,	
Mr. Dix . .	Staff Surgeon,	
Mr. Fraser .	Surgeon, Civil Hospital.	
Dr. Ardebol, Dr. Bobadilla, Dr. Mathews, Mr. Rouvier, Mr. Thurston,	Chosen by ballot from all the civil practitioners resident within the garrison.	

"These members having assembled on Tuesday, the 27th of January, 1829, elected for their President, Dr. Louis, of the Royal Academy of Medicine of Paris ; for their Vice-President, Dr. Barry, of the Royal College of Physicians of London, and Doctor of the Faculty of Medicine of Paris ; and Dr. Trousseau, Supplementary Professor of the Faculty of Medicine of Paris, for their Secretary.

"The Board having unanimously, and upon the fullest conviction, admitted the perfect identity of the late and all the former epidemic fevers of this garrison and of the southern parts of Spain, since the year 1800, with the disease known by the name of *Vomito Prieto*, and yellow fever in America, the West Indies, and Spain,—Resolved, that the general question as to the liability or non-liability to a second attack of this fever, should be divided into two questions, viz. :

"1. Whether an individual who had suffered one attack of

this fever in Europe, is liable to a second attack of the same disease in Europe.

"2. Whether a person who had suffered an attack of this fever in Europe is liable to be again attacked by it in America, the West Indies, or elsewhere, and *vice versâ.*

"This division was thought necessary, because an opinion has been expressed by some physicians as to the possibility of the constitution being deprived, by a residence of a certain number of years in a cold climate, of that immunity from a second attack of this disease, which they acknowledged is retained so long, as the person remains in a warm or even in a southern climate.

"When the question of non-liability to a second attack of the Bulam fever was submitted to the decision of the College of Physicians of London, in 1815, by the British Government, that learned body observed in their reply, 'that though, from the evidence before them, there seemed strong reason to believe that persons are not liable to a second attack of that disease, yet that a more enlarged experience, and the concurring testimony and observation of a greater number of medical practitioners, would be necessary to enable them to give a positive opinion.'

"The Board, convinced of the prudence of this observation, determined to avail themselves of the talents and experience of as many physicians as possible, and therefore resolved that all the medical men then resident in Gibraltar, civil as well as military, should be requested to attend the Board, and to communicate the result of their observation as to the subject in question.

"Various circumstances had collected a considerable number of experienced physicians of different nations in this garrison, during the late epidemic. Some of these physicians had witnessed several epidemics in the same town, particularly in Gibraltar: and though their evidence was the most valuable,

it could not be exclusively admitted. The Board therefore determined to avail themselves of the testimony of those also who had not practised long enough in one town to have seen two epidemics, and, consequently, could not have personally observed many individuals exposed to the danger of contracting the Bulam fever more than once.

"As the Board could not ground their conclusions on bare assertion, it became necessary that the physicians, interrogated by them, should be requested—1st. To state the symptoms of the presumed first and second attacks, which they might bring forward. 2d. Whether they had ascertained the symptoms of the first attack from the patients, or whether, not having witnessed either of the two presumed attacks themselves, they had positively, and from a respectable source, ascertained the symptoms of both.

"In order to be able to form a just estimate of the number and the proportion of second attacks, it became necessary to know the number of patients that each medical man had attended in the course of his practice, and also to learn whether he knew, from his own personal observation, of any remarkable instances of immunity from a second attack of the Bulam fever in persons fully exposed to all the causes allowed, whether by contagionists, or non-contagionists, as most capable of producing a first attack. The following questions, therefore, were first sent round to the twelve senior medical men, in a circular letter from the President, and afterwards put by him, *viva voce*, to all the medical men of Gibraltar, and to the members of the Board themselves, individually and personally, in their own respective languages, at a full meeting of the Board, viz.—

"'1st. State the number of cases that you may have seen in the late or any former epidemic.

"'2d. The number of those whom you may have seen attacked in two different epidemic years, or of whose double

attack you may have obtained a positive and precise knowledge.

"'3d. State some of the more remarkable instances that may have come to your knowledge, in which persons who had suffered the disease at à former period resisted its influence in one or more succeeding epidemics, though fully exposed to all their dangers.'

"Thirty-three medical men were thus interrogated. The greater number of them had witnessed the fever in Spain only; the others had witnessed epidemics both in Europe and America, or the West Indies. The number of sick that they had all, collectively, seen or treated, amounted to nearly 27,000.

"One only of these medical men, Mr. Amiel, surgeon, 12th Foot, who had witnessed four epidemics in this garrison, viz. those, 1810, 1813, 1814, and 1828, had attended two persons in what he considered to have been second attacks of the Bulam or Yellow Fever.

"Mr. Wilson, of the Civil Hospital, stated that he had attended two persons last year, who told him that they had had the yellow fever in 1812.

"Mr. Amiel stated to the Board the symptoms observed by him in his two patients, in the years 1813 and 1814. Mr. Wilson stated those observed by him in his patients in 1828, and reported the evidence of the patients themselves, relative to the symptoms they had experienced in 1813.

"The Anglo-French Medical Commission, in the course of their inquiries, had met with nine persons who said that they had been ill in two different epidemics, at intervals of ten, fifteen, and even twenty-four years.

"The symptoms of each attack were collected from the persons themselves, who said that they had felt them, and were afterwards submitted to the examination of the Board.

"Four physicians had attended, in 1828, some patients, who said that they had had the yellow fever in one or other of the former epidemics; but as the symptoms of the first attack could not be stated, the Board could not take these cases into consideration.

"One military surgeon mentioned a fact relative to a soldier who, as he said, presented a sporadic case of the Bulam fever in 1826, and who was attacked by the disease during the epidemic of 1828. The Board, however, being limited to the consideration of cases of double attacks, in two different epidemics, and reflecting, besides, that the existence of the Bulam or yellow fever, as a sporadic disease, is disputed in Europe, declined to enter on this question, as being foreign to their purpose.

"From what has been said, your Excellency will perceive that the Board had to deliberate on the validity of thirteen cases only of presumed second attack. The votes of the members of the Board were taken upon each attack of each case separately, without discussing the symptoms stated by the physician who brought forward the case; and, for obvious reasons, these votes were given by ballot. Each member wrote on a slip of paper, which was folded up and handed to the President, one of the following words—Evident, Probable, Doubtful, or Inadmissible.

"One case of double attack was, upon the scrutiny being made, declared evident by the majority of the Board. This case was brought forward by Mr. Amiel, surgeon of the 12th Foot, who had attended the subject of it in both attacks.

"Three cases of second attack were declared probable.

"One case had an equal number of votes for its being probable and for its being doubtful.

"All the others were declared inadmissible.

"Several very remarkable instances of immunity from a second attack were brought before the Board.

"Mr. Amiel had attended in Gibraltar, in 1810, two young men, brothers, of the name of Ray, labouring under the epidemic fever. In the year 1821 these young men happened to be on board a vessel at Barcelona during the prevalence of the fever in that town. Several persons on board having been attacked by the disease, the vessel was ordered to the lazaretto at Minorca, when the whole of the crew, nineteen in number, fell victims to it. The two brothers alone survived, and without having been attacked by the disease.

"Dr. Ardebol knew a considerable number of Spaniards in Havanna, who, having had the Bulam fever in Europe, were not attacked by it in the West Indies; and he also saw many persons in Spain who, during the last epidemic in Barcelona, were not attacked by the fever, which they had already gone through in America.

"Drs. Merry and Dias state, amongst other remarkable facts of the same kind, that thirteen military physicians and surgeons, whose names they gave, went to the Havanna or Vera Cruz, after having had the epidemic fever in Spain, and were not attacked by the yellow fever of those countries, though daily in the midst of their soldiers, who were labouring under it at the time.

"Mr. Cortes, who has practised medicine in this garrison for the last thirty-six years, states that twenty-six persons of the same family left Gibraltar for the island of Cuba; twenty-four of these persons had had the yellow fever here; the remaining two, who had not had the epidemic here, were alone attacked in Cuba.

"A still more striking and a more recent fact was brought before the Board by Dr. Broadfoot, relative to the orderly men and other attendants, who, during the late epidemic, were incessantly employed in the midst of the sick in the military hospitals. *Of these persons thus employed,* 164 *were soldiers, who had never had the Bulam fever, and* 61 *were natives, Spaniards, or Portuguese, who all, except two, had already passed through the disease in some former epidemic.*

"Of the 164 soldiers, 141 were attacked at various periods of their attendance upon the sick, *whilst of the* 61 *civilians employed in the same service, the two only who had not had the fever before caught the disease.*

"The very curious and valuable documents on which this fact is founded, are the official returns, made out and signed by the surgeons of the different regiments, and extracted from the registers of their respective hospitals.

"From these facts, then, it is *evident* that *one attack* of the Bulam or yellow fever preserves the individual *from a second; invariably*, the Board would have added, did not even the very small number of cases of second attack brought before them seem to show, that there may be some rare exceptions to this rule in this disease, as there certainly are with regard to the smallpox itself.

"Thus, the opinion so universally and so deeply rooted at present in the minds of the whole population of the southern parts of Spain is confirmed.

"Thus, the well-founded security from a second attack of this dreadful malady now ensures to the sick those attentions which the terror inspired by the disease had, in spite of every tie, so often deprived them before this belief was established by facts.

"Thus the bold, but provident, parent now feels himself justified in exposing (and frequently does expose) his infant offspring during an epidemy to the influence of the disease, knowing that it is less fatal at this early age, and that once passed it is no longer to be dreaded.

"After what has been said in this report, and in the notice issued by your Excellency's order, already alluded to, it is unnecessary to point out the immense importance attached to the solution of the single sanitary question which, through the wisdom of your Excellency, has been submitted to the deliberation of the Board.

"The numberless lives that the knowledge of the fact it involves, may hereafter be the means of saving; the many valuable lives that it has already saved in the late and other epidemics, both here and elsewhere.

"The additional facility, steadiness, and security which this knowledge will give to all precautionary measures in times of epidemic infliction.

"The security that it will afford to the attendants on the sick, when properly selected; the important sanitary arrangements which may be founded on it, in reference to British troops destined to serve in the West Indies.

"The Board cannot close their report on this most interesting subject without acknowledging the large debt of gratitude which science, commerce, and humanity owe to Dr. Pym, to whose talents, sagacious observations, persevering industry, and research, is due the undivided merit of having been the first who steadily investigated, and boldly promulgated to the public and the profession, *this singular and now well-established property of the Bulam fever.*

I have, &c.

(Signed) LOUIS, President."

"This character of the yellow fever, viz. *its attacking the human frame but once*, being established, the peculiarity of its being a disease *sui generis* and infectious, is also confirmed, and decides the controversy as to the yellow fever and the remittent or marsh fever, being two different and distinct diseases.

"The first disease, the yellow or Bulam fever, from the delusion so long existing in the minds of medical men, was supposed to be only a higher grade of the marsh fever, and on this account not supposed to be infectious or contagious: hence all the *misery* and *mortality* produced by it, and which has never been more strongly exhibited than in the case of the *Eclair*. By the peculiar circumstances attend-

ing this vessel, much light has been thrown upon the subject, and she has been the medium of finally settling a most important question.

"For it is evident that two different diseases, the yellow or Bulam fever, and the marsh or remittent fever, existed on board the *Eclair* at different times, and during distinct periods.

"It has been stated (p. 144) that the *Eclair*, when at anchor off the African coast from the month of January to the 10th of June, lost ten men from the well-marked remittent fever, the only individuals in the ship who were attacked by it, having been from among those who had been employed on boat service up the Sheabar river; and it must be remarked that not one of the fatal cases, was attended with the discriminating symptom of black vomit; neither did it show any infectious or contagious power, as it was not communicated by the sick to any others of the crew.

"All the cases occurred between the 3d of April and the 5th of June—the date of the last attack of this *marsh* or *coast* fever.

"From this date the *Eclair* continued free from disease until the 23d July, on which last day she sailed from Sierra Leone (where she had been at anchor eighteen days), having only one seaman suffering from fever. This man had been on shore on leave of absence, and died the fourth day after sailing with the marked symptom of *black vomit*. He was the first individual in which this symptom appeared from the time of the arrival of the steamer on the coast of Africa. *This new fever*, however, spread rapidly amongst the crew; three men who had also been on leave on shore having in a few days, as well as a passenger (Mr. Dawson), died with the same symptom of black vomit. Thirteen deaths took place before the *Eclair* reached Boà Vista, most of them dying with the same fatal symptom which continued to show itself until the arrival of the vessel in England. This proof of the existence

of two very different diseases is a melancholy confirmation of the dreadful loss of human life which might have been saved, if the nature of the disease had been known. I have endeavoured for a great many years to put the profession right upon the subject, and I sincerely hope that I have at last succeeded through the medium of the unfortunate *Eclair*. It will now rest with those in authority to establish measures of precaution against the disease, which is far more to be dreaded than the plague. By neglecting or declining to do so, they will incur not only great responsibility but culpability.

I have, &c.

(Signed) W. PYM."

After the sitting of this Commission a census of the population of the garrison was taken by order of the Governor, when it was ascertained that there were 6700 persons who had passed the disease at some former period, either in the garrison, in Spain, in America, or the West Indies, who were all proof against a second attack, not one of them having had the slightest symptoms of the disease.

So long ago as the year 1817, when this fever was committing great havoc on board his Majesty's ships as well as amongst the troops in the West Indies, I wrote to the Lords of the Admiralty, pointing out the advantages likely to be derived by the establishment of precautionary arrangements against yellow fever, viz. by cutting off communication with infected ships and places, excepting through the medium of quarantine regulations. To which I received the following reply:

"Admiralty, April 3d, 1817.

"Sir,—I have their Lordships' command to acquaint you, that having referred your letter and treatise to the Transport Board, and received their reply, their Lordships are not of opinion that the regulations which you suggest in the nature of quarantine restrictions would be attended with beneficial

effects, or are necessary, provided the usual precautions on board his Majesty's ships in the West Indies and in other hot climates are attended to.

I am, &c.,

J. BARROW."

It was of course to be expected that the Lords of the Admiralty having referred the subject to the Transport Board, would act agreeably to their suggestion. But to show that the Army Medical Board saw the matter in a different light, and that it was acted upon, and most successfully, the very first opportunity; I insert a copy of a letter from the Army Medical Board to Mr. Green, the Inspector-General of Army Hospitals at Barbadoes.

"Army Medical Department, Feb. 14, 1821.

"SIR,—We have duly received your letter of the 19th December, containing the reports regarding the disease which had so much prevailed in the command. We beg to *thank you* for the valuable communication, and cannot but highly approve of the *precautionary measures* you adopted with so much promptitude and prudence. Having submitted the subject to the Commander-in-Chief, we are gratified in the opportunity of forwarding to you a copy of the letter in reply, conveying His Royal Highness's approbation of your proceedings.

(Signed) J. M'GRIGOR,
W. FRANKLIN.

"R. Green, Esq., Inspector-General, Barbadoes."

And Sir William Franklin, in a separate letter, 15th Feb., says:

"I have perused very attentively the various papers you have sent home, relative to the fever which prevailed at Tobago and Barbadoes. The very judicious, prompt, and

energetic measures adopted by you seem to have had, at Barbadoes, the most decided good effects. You will see by the public letter that your conduct has been much approved by His Royal Highness as well as by the Director-General.

(Signed) W. FRANKLIN.

"R. Green, Esq., Inspector-General."

With reference to the fever on board the *Sibylle* frigate, it is stated that "the disease throughout was considered by the surgeon as non-contagious, but by the officers and men highly so."

"The Commodore, from humane motives, prohibited all Europeans, excepting himself and the medical officers, from visiting the sick." Dr. M'Kechnie has kindly furnished the following incident, which deserves to be placed upon record.

"To dispel as much as possible the state of general mental depression, and to *convince the officers and the ship's company* that the disease was not contagious, Dr. M'Kinnal directed me to collect some black vomit from the first patient who was attacked with that fatal symptom; accordingly I collected about a pint of it from a man named Riley, I think, about two hours before he died. Shortly after this the doctor came up to the starboard side of the half deck, when I told him what I had done. He then went down to the gun-room, and about half-past twelve o'clock (the men being then at dinner), returned with a wine-glass. Mr. Green, the officer of the forenoon watch, was then going below, when he called him over, and, filling out a glassful of the *black-vomit*, asked him if he would like to have some of it; being answered in the negative, he then said, 'Very well, here is your health, Green,' and drank it off. There were no other persons actually present, but there were others on the deck at the time, and it became the theme of conversation all over the ship during the afternoon. Dr. M'Kinnal immediately after-

wards went upon deck, and walked until two o'clock, to prevent its being supposed that he had resorted to any means to counteract its bad effects."

This disgusting performance, and most revolting measure, is put down as a deliberate act of cool moral courage, and a decided proof of non-contagion.

The same operation has more than once been performed in America, as an *experimentum crucis* in the heat of controversy upon the subject of yellow fever.

But it only establishes more strongly and decidedly the non-liability to a second attack of vomito-negro fever.

The same exhibition might be performed, during the prevalence of smallpox, by an individual who has had the disease, by swallowing a mess of dried pustules!

It is not stated when Dr. M'Kinnal was attacked by the disease; but at p. 52, 'African Report,' we have the following: "It is to be regretted that in consequence of the harassing duties and subsequent illness of the surgeon, he was unable to send in so full an account of the disease as could have been desired; and the reporters are, in consequence, under the necessity of having recourse to the 'Medico-Chirurgical Review' for their information."

Dr. M'William followed his instructions most carefully and zealously, however unsatisfactory his replies may have been to the Director-General, he stated the result of his inquiries most honestly, although contrary to his originally preconceived opinions.

The evidence brought forward by him, must be thought sufficient to convince the world of the highly infectious nature of this most fatal fever: one individual, however, Sir W. Burnett, is an exception.

In presenting the Report to the Lords of the Admiralty, he says—

"Dr. M'William appears to have taken considerable pains to gain information, but after a careful perusal of the papers he has sent, I am compelled to say that I cannot conscientiously arrive at the conclusion the Doctor has done; viz. *that the fever was* occasioned by the intercourse with the *Eclair*, which is, however, the chief point on which *we differ;* agreeing with all my late Reports to their Lordships on the same subject; and also in *conformity with a former Report of mine to their Lordships respecting the case of H.M.S. Bann, in the year* 1824."

This last is a most singular statement, *and rather mysterious;* it would appear that he wishes to make the Lords of the Admiralty believe, that his *Report upon the fever in the Bann, was in direct opposition* to that made by Dr. M'William upon the *Eclair,—whereas they agree most perfectly!*

Dr. M'William says, "Connecting the whole of the circumstances attending the arrival and stay of the *Eclair* at Boà Vista, with those under which the disease appeared on the small island, and afterwards on Boà Vista itself, *leaves no doubt* of its having been introduced by the *Eclair*."

Sir W. Burnett, at p. 38 of the 'African Report,' says, with reference to the appearance of this (vomito-negro) fever at the island of Ascension in the year 1823 (in consequence of the arrival at that island of the *Bann* sloop-of-war with the fever raging on board)—"*There is just reason to suppose that the disease was introduced into the island by that ship.*"

At p. 194, 'African Report,' the reporters say—"Having traced the *Eclair* fever, from its first appearance on board, at the island of Sherbro, until it ceased, previously to her arrival at Sierra Leone, and from its reappearance there, in a *more concentrated form*, until it finally disappeared some time after her arrival in England, it is impossible not to be struck with the close similarity it bore to that of the *Bann!*

" *Both vessels contracted the disease* at Sierra Leone, and apparently from the same cause or causes, and under similar circumstances.

" In *both vessels*, in the course of a few weeks, it assumed an epidemic character, if it did not *acquire contagious properties.*

" The one vessel proceeded to the barren, rocky island of *Ascension*, a few degrees to the south of the equator, where a *disease* of the *same character* made its appearance *amongst the inhabitants*, and committed *great ravages.*

" The other proceeded to the nearly equally barren island of *Boà Vista*, a few degrees to the north of the equator, where, in *like manner*, a *disease* a short time after *broke out*, and *raged with equal severity*,"—another proof of the agreement of the two Reports!

We have thus the circumstance of the double importation of this black-vomit fever—*first*, into the island of Ascension by the *Bann*, in 1823, as acknowledged by Sir W. Burnett, and *afterwards* into the island of Boà Vista by the *Eclair*. He still, however, holds out against the infectious nature of the disease, even after having seen the decided evidence in favour of the fever having been communicated to the crew of the *Bann*, and to the crew of the *Eden* at Sierra Leone; next by the *Eden* to the population at Fernando Po, and afterwards by that population to the crew of the *Sibylle;* and, looking back to the melancholy history of the family, at p. 253, any man who is not convinced of the infectious nature of this frightful disease, and would recommend the release from quarantine of a ship in such a state as that of the *Eclair*, and allow her crew to communicate with a healthy population on shore, must be labouring under a *monomaniacal non-contagious delusion.*

Sir William Burnett at the same time seems aware of the importance of settling the *question*, for, in his work upon

Mediterranean Fever, he says (p. 207)—"The question of contagion is one of most serious import, and should not be lightly decided upon. On the one hand, if the fever be *not* contagious, much unnecessary alarm is occasioned. Patients are deserted by their nearest relations, commerce for the time destroyed, and individuals frequently suffer great distress."

I should say, quite the contrary! I do not see why a non-contagious disease should create all this alarm and desertion by friends. He continues—

"If it be a contagious fever, it would be doing the greatest possible injury to the community, to allow it to proceed without using every means in our power to arrest its progress —to draw a line between the healthy and the infected, the living and the dead."

Sir William, however, is determined to be an alarmist, and support the first position, for he certainly has never taken any means, even by recommending the arrest of the progress of the disease, nor has he attempted to "draw a line of security between the healthy and the infected."

Sir W. Burnett, in presenting Dr. M'William's Report to the Lords of the Admiralty, states his regret that Dr. M'William had omitted to take any notice of what he considered a very remarkable state of the weather, mentioned (in extracts of letters from the Governor-General and British Consul at Boà Vista) as having preceded the attack of the inhabitants of the island, which attacks, he states, "*do not appear to have taken place till a month after the departure of the Eclair from the island.*" This is a great mistake on the part of Sir W. Burnett. It would really appear that he had not read Dr. M'William's Report; he might have said, that the fever did not prevail to any extent on the island, until a month after the departure of the *Eclair;* but there can be no doubt of the first cases of the fever, viz. Luis Pathi (p. 241) and the soldiers in the fort (p. 245) having appeared within one week after

her departure; and, allowing for a certain number of days of incubation, before the appearance of the fever in persons after having been infected, it could not have been expected to prevail generally in a shorter period.

And with reference to Sir William Burnett's own history of the introduction of the same disease into the Island of Ascension by the *Bann* sloop-of-war, it appears that the first case of the disease which appeared on the island was on the 18th day after the arrival of the *Bann*, and, as at Boà Vista, it went on attacking one or two individuals daily after that time.

And as to the remarkable state of the weather supposed to have existed at Boà Vista, which Dr. M'William had neglected to notice, it appears that all that gentleman's observations upon this point, tend to prove that there was nothing uncommon in the state of the weather.

Upon this supposed state of the weather, however, is founded a *second mission* to the Cape de Verd Islands. Sir W. Burnett, not satisfied with Dr. M'William's Report, prevails upon the Lords of the Admiralty, with the view of finally settling this important question, to send Dr. King to Boà Vista with one additional instruction to those delivered to Dr. M'William.

No. 12. "Be very particular in your inquiry as to the state of the weather as related by the Governor-General of the Cape de Verd Islands, and the British Consul there, previously to the commencement of the fever, and take every pains to ascertain the date of its commencement, and its effects upon the surrounding country."

The reply to this (supposed to be all-important) question it was to be hoped, would have overturned the whole of the conclusions come to by Dr. M'William.

It is as follows: "The periodical rains, contrary to what usually happens, did not set in, until late in September

(1845), and the fall, though heavy at first, was altogether *less* in quantity than had been known for several years! In October, November, and December, the winds were light and variable, with frequent calms, and the weather, in consequence, extremely sultry and oppressive. The grass and green crops were nearly destroyed by the long previous drought, and what little appeared after the rains was devoured by the locusts, which visited the island this year, in greater numbers than was ever known to be the case before."

This is the reply to the great question which Dr. King had to solve, and which amounts, in fact, to nothing; (it would have been better if he had remained at home;) the rains were late and heavy, but the *great quantity* of rain which was to have produced the supposed malaria, was actually less in quantity than had been known for some years before. So that Dr. M'William was not so neglectful of his duty as has been insinuated!

FEVER IN GIBRALTAR, IN 1828.

From the year 1814 until 1828, the garrison of Gibraltar continued healthy. In the beginning of August in this last year, the black-vomit fever again made its appearance in the town!

As usual, there existed a variety of opinions as to contagion and non-contagion, local origin and importation.

In consequence of the various and contradictory statements made to the Government relative to the origin and alarming spread of the disease, I was consulted by Sir George Murray, then Colonial Secretary; when, finding that no measures of any description had been taken with the view of checking the progress of the disease, I immediately offered my services, which were instantly and thankfully received. The Mediterranean packet was detained one day, and I proceeded to Falmouth the next, and arrived at Gibraltar on the 4th of November, when the attempt at arrangements for checking the progress of the disease was almost hopeless, few of the inhabitants who had not passed the ordeal at some former period having escaped it. It was with much regret I heard of the death of my friend Dr. Hennan, principal medical officer, the day before my arrival; and although I had gone to Gibraltar to superintend and give directions in a civil capacity, the Lieutenant-Governor insisted upon my taking charge of the military medical department of the garrison.

In making inquiries as to the number of soldiers who had and had not been attacked, with the view of commencing precautionary arrangements; I was very much struck with the rigid regulation (established in one instance) against the contagion of the fever, the more so, from being aware of the opinion of the principal medical officer at the commencement of the disease, when no precaution of any kind was had recourse to.

I found in Rosia Bay, upwards of 500 men belonging to different regiments, detained under observation (in a kind of quarantine), and prevented all communication with the soldiers in their own regiments. They had all suffered an attack of the fever, and were dressed in the hospital uniform, a flannel gown and trousers.

This was at a time when their services were very much wanted, on account of the duty falling so heavily upon those men who had hitherto escaped an attack of fever.

I immediately reported the circumstance to the Governor, who, by my desire, ordered them to be paraded next morning.

In the meantime every man was directed to be prepared with a complete suit of every article of clean clothing.

At their parade next morning, I walked along the line, and made the very few that I considered not sufficiently recovered for duty to fall out.

The main body was then marched to the sea-side, where they deposited their clean suit of clothes. They were then directed to walk out into the sea to a sufficient depth for a bath, where they let fall every article of clothing they then wore into the water; they then had a thorough wash, wrung out their wet dresses, and returned to the shore, where they dressed in their uniforms, and were marched to their respective barracks. By this arrangement a body of full 500 men were ready for duty, and proved not only a great relief to the garrison, but was the means of protecting a considerable number of men against an attack of the fever.

It is curious to observe how the medical officers (when their opinion does take a change) go from one extreme to the other!!

Something of nearly the same kind occurred with reference to the *Eclair* steamer, by Sir William Burnett, who, upon her

first arrival in England, had approved most strongly of the landing of her sick, and her admission at once to free pratique. He seemed, however, to have suddenly changed his mind, as to the safety of admitting this ship to a free communication with the shore, as appears by the following extract of a letter to the Secretary to the Admiralty, dated October 7, 1845, five days after her arrival at Standgate Creek:

"As it is desirable that means should be taken to prevent the disease from again making its appearance in this ship, I would very respectfully suggest to their Lordships, that so soon as the *Eclair* is admitted to pratique, all the sails and stores should be removed into a hulk, and hung up and exposed to the air for at least ten days, during which time they should be shaken, or, if sails, slightly beaten with a stick."

(Signed) W. BURNETT, Director-General."

Board of Inquiry as to Liability to Second Attacks.

In consequence of instructions from Sir George Murray (Colonial Secretary), as soon as a termination had been put to the prevailing fever, Sir George Don, the Lieut.-Governor, ordered a Board or Commission, composed of the civil and military staff, to assemble, for the purpose of inquiring into the origin of the disease which had prevailed in the garrison.

The Lieutenant-Governor, Sir George Don, was directed by the Colonial Secretary to preside at this Board of Commissioners; it was at the same time stated that if, from unavoidable circumstances, he found it inconvenient to do so, that I was to be nominated chairman. When it was mentioned to me, I stated that, in my opinion, I ought not to be a member of the Board, as my opinions relative to the prevailing disease were not only already formed, but published. The order, however, was imperative, and I was under the necessity of taking the chair.

The proceedings of, and evidence produced before, this Board was so very voluminous, I cannot in this place give but a very short abstract.

As soon as the Board began to approach the preliminary steps of the inquiry, they found both public and medical opinion, divided with regard to the origin of the destructive malady, and pointing to two distinct, and widely-different sources, viz.:

"1st. Causes inherent in the local circumstances of the town and territory of Gibraltar.

"2d. Ships, persons or effects supposed to be infected with the disease before or after arriving from distant places."

The board anxious to avoid the influence of preconceived opinions, to derive their information from the most authentic sources, and to found their judgment upon facts alone, deemed it expedient—

"1st. To apply for copies of all official correspondence relative to the epidemic, from the 15th of August, 1828.

"2d. To call on the Captain of the port for a return of all vessels that had arrived in this bay from yellow fever countries, between the 1st of June, and 1st of September.

"3d. To call on all the medical practitioners, civil as well as military, residing within this garrison at the time, to furnish a circumstantial history of the very first case of disease which each might have treated, or which might have come to their respective knowledge last year, and which they might then, or since, have considered identical with the late epidemic.

As a well-authenticated knowledge of the spot on which, and the person in whom, the disease first appeared, was thought likely to shed considerable light on the subject of their inquiry.

Upon reading over the correspondence of the late Dr. Hennen, principal medical officer, transmitted to the board

by the military secretary, it was evident that he considered the cases of fever which occurred in district No. 24 of the Town, about the middle of August and beginning of September, to be nothing more than ordinary autumnal bilious fevers, produced principally by the effluvia emanating from drains and public sewers, and by the overcrowded state of the habitations of the lower orders.

"The board had resolved at this second sitting, that the state of the drains and sewers, and the condition of the population at the commencement of the epidemic, should form the first two heads of the inquiry, from their having been so strongly indicated by the chief medical officer of the garrison, as the two great sources of the disease.

"But as the medical practitioners in the return of their first cases designated, as yellow or black-vomit fever, the very same cases which Dr. Hennen had in August denominated bilious remittent, it became indispensable, previously to making another step in the inquiry, to ascertain if possible whether the late epidemic fever, and the autumnal bilious remittent fevers of the south of Spain, are, or are not, the same disease.

"This mode of proceeding became imperative upon the board, as well from the importance of the question itself, as from the documents before them, and that it was the course by which they would be most likely to arrive at a satisfactory conclusion."

This question, however, appeared to be decided, before proceeding further in the inquiry; as it was known to most of the members of the boards, and it could not but be regarded as a remarkable circumstance, that on *the fourth of September*, a Spanish medical commission sent from Algesiras, by the Spanish government to examine and report upon the nature of the fever then existing in this garrison, should have discovered *six cases of yellow fever* (vomito prieto), the nature

of which appeared to them *so evident*, that they immediately recommended the establishment of a sanitary cordon against Gibraltar, which was carried into effect the next morning.

From this fact alone, though there were no other, it is evident that the settling the distinctions between the ordinary autumnal fevers of the south of Europe, and the black-vomit fever of the West Indies, is a question, the solution of which involves considerations of the very highest importance.

Thirty of the most experienced medical men of the garrison, civil as well as military (not members of the board), were called upon, and personally questioned as to the identity or non-identity of the remittent and late epidemic fevers.

Seven of these considered the yellow, Bulam, or black-vomit fever as only a higher grade of the remittent, which last they held up to be a high grade of the intermittent, and all produced by malaria.

Twenty-two held the two diseases to be *perfectly distinct*.

One declined giving any opinion.

Of the seven who viewed the epidemic as merely a grade of the remittent or malaria-fever, six had never seen the disease in an epidemic form in Europe, whilst only three had seen it in the West Indies.

"Of the twenty-two medical gentlemen who gave it as the result of their experience that the late epidemic disease and the remittent fevers of Europe are distinct diseases, differing from each other by strongly-marked characters, which they pointed out both in their verbal and written replies to the queries of the Board, *sixteen* had seen and treated the disease in more than one epidemic; two or three of those had seen it both in Europe and the West Indies.

"Dr. Louis, one of the most distinguished morbid anatomists now existing, and one of the three physicians sent here by the French Government during the epidemic, to study

and report upon its nature, gave to the Board, in his personal replies to their queries, a very remarkable picture of the difference, between the traces of disease left by the epidemic, and those left by the fevers of Europe, in the organs of their respective victims. He showed that the same organs are not attacked in both diseases, and that the difference between the symptoms of both, during life, correspond with this fact.

"The evidence already adduced having been thought by the majority sufficient to prove that the remittent fevers of Europe and the *late epidemic, or black-vomit fever, are distinct diseases.*

"The Board next proceeded to direct their inquiries to the state of the drains, public sewers, and other alleged domestic sources of the late calamity, both previously to, and during the summer and autumn of 1828.

"By the plan of the public sewers, it appeared that there are fewer drains in the upper levels, but particularly in district No. 24, forming one of the highest skirts of the town, than in the lower levels, where the houses are more thickly placed.

"It is certain, however, that this was the district in which the dreadful malady commenced on the 12th of August, and that, though gradually extending itself, it was confined to this district for nearly three weeks.

"With regard to the medical evidence, on the head of drains and malaria, it was divided, as might have been anticipated, nearly in the same manner as on the first question; that is, six of the seven who conceived that the late epidemic disease was but a grade of the remittent and intermittent, held that the effluvia from public and private sewers, and malaria generally, were the chief causes of this dreadful calamity.

"The twenty-two who considered the late epidemic as a disease distinct from all others, naturally conceived it to be

entirely independent in its origin, of any cause existing in this territory, and especially unconnected with public or private sewers.

"The general tendency of the facts brought before the Board by the evidence examined on this head went to prove, in the estimation of the majority, that the sewers and other sources of effluvia were not more offensive in any part of this territory last summer and autumn, than in the corresponding seasons of the five years immediately preceding, and that there was no well-established ground for believing that these effluvia had been the cause of the epidemic.

"On the contrary, several very remarkable instances were brought before the Board, in which there appeared to have been an exemption from the disease in persons the most fully exposed to their influence.

"Eighteen men, employed under Mr. Imosi, master mason, from July to November, during the prevalence of the fever, in reconstructing one of the oldest and most filthy drains in the garrison, continued exempt from the disease as long as they were so employed, although twelve of them had never had the fever before, and although the stench was sometimes nearly insupportable.

"It is also worthy of notice that the inmates of the houses situated along the course of this drain seemed to enjoy a similar exemption, and during the same length of time, viz. until the drain was completely covered in.

"By the evidence of Captain Crawford of the Royal Artillery, it appears that three companies of that corps, quartered in the Orange Bastion, continued perfectly healthy until they were removed into camp, about the 15th of September, although the brass ornaments of their appointments were so tarnished by the effluvia of a drain running through their barracks, as to make it difficult for the men to keep them bright.

"From an attentive consideration of the documents brought before the Board, and from the oral information given to the Board by their authors and others, it appears—

"1st. That the public drains have been considerably improved since the year 1814, and particularly within the last three years, as is shown by the statements of Major-General Pilkington of the Royal Engineers, and of Mr. Woodward, architect.

"2d. That, with respect to the existence of atmospheric or other physical causes, capable of producing disease on this rock last summer and autumn, none were observed, but, on the contrary, it appears by the return laid before the Board, and by the statements of the best informed and most scientific evidence, that the summer was cooler, westerly winds (which are considered the most healthy) more prevalent than usual during the months of July and August; that the quantity of rain which fell in 1828 was, as nearly as possible, the same as the average of the four preceding years, viz. twenty-four inches seventy-eight parts.

"The Board, after the most attentive consideration of all the documentary and other evidence brought before them relative to the local circumstances and sanitary history of this territory and its population during the last thirteen years, determined, at their thirtieth sitting, by a majority of five to two, that the mass of facts which they had hitherto collected afforded NO GROUNDS for concluding that the late calamity arose from *domestic causes.*"

Importation.

"One other source, importation, from which the disease might have been derived, still remained to be investigated.

"It was well known that the fever did not appear in the little village of Catalan Bay, on the east side of the rock, before the 21st September, more than a month after it had broken out within the garrison.

"As this village is perfectly isolated, is distant more than a mile from Gibraltar, can only be approached by a single narrow path between the north-eastern base of the rock and the Mediterranean sea, and as it contains only about eighty houses, it seemed to afford a favorable opportunity for trying the question of importation of disease upon a small scale.

"From the evidence of the priest of the village, of the inspectors, and of the military commandant, Captain Jenkins, of the 12th regiment, it appears that the first persons taken ill of the epidemic, there were a water-carrier and his family. This man was in the habit of carrying water on his donkey into Gibraltar, and of frequently bringing home from thence foul linen to be washed by his wife.

"That the second person taken ill, not of this poor man's family, was the servant of Captain Jenkins, Daniel M'Curry, of the 12th regiment, who had assisted him a few days before his death to unload a bundle of clothes from his donkey. That the first soldier of the detachment stationed there, and the first individuals of Captain Jenkins's own family taken ill, were those who assisted and approached M'Curry before he was sent to hospital.

"That the first inhabitants taken ill, next after the water-carrier's family, were those living close to, or who had intercourse with, them; whilst the precautionary measures adopted

by Captain Jenkins, and the mutual apprehension of each other, existing among the inhabitants at the time, seemed to have limited the spread of the disease, not one tenth of the population having been attacked, and many of these being women and children, who could have no communication with the town.

"The Board next determined to refer to the histories of first cases, and to aseertain, if possible, whether any connexion could be traeed between the subjects of one or more of them and the ships in the bay, in which yellow-fever might be presumed to have existed.

"By the concurring testimony of more than one medical evidence, and by the return of deaths delivered in by the Catholic vicar, it was ascertained that the first case of the epidemic fever occurred on the 11th or 12th of August in a boy of the name of Fani, thirteen years of age, who died on the 17th of August, with the fatal and characteristic symptoms of blaek vomit and yellow skin.

"That the second case was his sister, aged ten years, who was taken ill on the 17th, and died on the 20th. That the third was their companion and playfellow, a boy of the name of Cafiero, aged twelve years, who fell ill on the 16th or 17th.

"It was here considered proper to inquire into the occupation and mode of life of the family to which those children belonged. It was stated that the father was a cigar manufacturer, that he had formerly been a seafaring man; that his eldest son was a boatman, that the father went frequently into the bay, and that, on or about the 10th of August, he went with his son and daughter, and their companion Cafiero, on board some vessel for the purpose, as was said, of selling cigars, where they remained for about one hour; and upon their return on shore, carried a bag of clothes to their home to be washed.

"The boy, as it appears, was taken ill the day after, and his sister and companion as mentioned already.

"It was stated to the Board by a sister of one of the crew of the *Dryden*, and confirmed by the girl's late master, that she fell ill on the 20th of August, two or three days after she had counted out some clothes which her brother (who had had the black-vomit fever in the Havanna, shortly before he sailed for this place) had brought on shore from that vessel to be washed.

"Three washerwomen, residing in district No. 24, were taken ill about the end of August, whilst employed in washing clothes belonging to seamen of different ships. Two of these women died.

"It also appeared in evidence that the first two persons taken ill of the disease, out of 24 district, were the nurse (Mrs. Flynn) who attended the woman Silcox in the civil hospital, and the maid-servant of Mr. Fraser, surgeon of that establishment.

"That the mate of the ship *Dryden* was ill about the 24th of July, whilst the vessel was in quarantine.

"That one of the sailors shipped here to assist in navigating her to Cadiz was seriously ill on board her whilst in quarantine, after her arrival in that bay.

"That one of the sisters of Teste, the *Health Guard* of this *vessel*, was taken ill, according to Teste's own declaration, on the 21st of August.

"That the clothes belonging to the two seamen who died on board this vessel were sold to two American sailors who landed here.

"That *twenty-six vessels* arrived here from yellow-fever latitudes between the 1st of June and the 14th of August, on board of which *ten seamen had died* on the voyage.

The foregoing Facts.

"The disease being identical with the black-vomit fever of the West Indies, and different from any disease commonly known in Europe, *malaria fever being unknown within the walls of Gibraltar;* (only one case of ague having occurred during the epidemic in a Jew lately arrived from Barbary;) the neighbouring coasts of Spain, and Africa, having continued healthy during the summer and autumn.

"The disease having been communicated to several individuals on the neutral ground, who had no communication with the town.

"Its never having passed the cordon, though many fell sick, and some died within a few yards of it.

"Careful seclusion having protected the inhabitants of several houses both in the town and south, though of the most susceptible ages, and surrounded by disease, together with the first person who fell ill having been in some way connected with the shipping, *afforded to the majority of the Board strong presumptive proof that the late epidemic was imported.*"

I think it right here to mention that, with the inhabitants of Gibraltar, there existed a strong impression that the ship *Dryden*, whose crew had been sickly on the voyage (and which vessel they strongly suspected to have been a slaver), was the origin of all the mischief; but I must at the same time state, that there was no evidence to convict her, and that I stated my opinion generally that she ought not to have been under suspicion, as she underwent the regular period of quarantine, and was released therefrom in the regular way, with the approbation of the Inspector of Health in the Quarantine Department, and by the authority of the Lieutenant-Governor.

Another circumstance ought to be noticed, viz. that although the military medical officers of the garrison were ignorant of the nature of the disease at its first outbreak, the civil practitioners and the inhabitants were quite awake, as to the reappearance of the destructive visitor, from which they had suffered so severely in 1814; and it was owing to the general conversation upon the subject, that the Spanish Consul derived a knowledge of the circumstance. He gave the information to his Government, which immediately took alarm, and was the occasion of the Medical Commission being sent from Algesiras, to examine the patients labouring under fever in the garrison, and which they instantly recognised as the *vomito-prieto*, and against which a quarantine was immediately established, and with success, as Spain continued free from disease.

I have been led much further than I expected into the history of this disease, and not wishing my readers to rely entirely upon my own opinion, I have collected a mass of most respectable evidence in support of what I have advanced, to prove that the Bulam Fever is a disease, *sui generis, highly contagious, attacking the human frame but once; of foreign origin, capable of being propagated in countries enjoying a certain degree of heat, which may, at all times, be prevented by quarantine laws, and well-regulated precautionary arrangements.*

THE END.

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